

LIBRARY
BUREAU OF THE CENSUS

Bureau of the Census

ensus
724
J52x
84
r.21
s.34D
2

●

1982**Census of
Manufactures**

MC82-I-34D

INDUSTRY SERIES

**Screw Machine Products, Fasteners
and Washers; Metal Forgings and
Stampings; and Metal Services**

Industries 3451, 3452, 3462, 3463, 3465, 3466,
3469, 3471, and 3479



U.S. Department of Commerce
BUREAU OF THE CENSUS

The publications
from the 1982 Economic and
Agriculture Censuses are dedicated
to the memory of Shirley Kallek,
Associate Director for Economic Fields.
During her career at the Bureau of the
Census (1955 to 1983), she continually
directed efforts to improve
the timeliness and accuracy of
economic statistics.

1982

Census of Manufactures

MC82-I-34D

INDUSTRY SERIES

Screw Machine Products, Fasteners and Washers; Metal Forgings and Stampings; and Metal Services

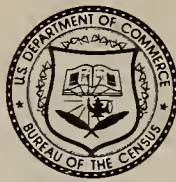
3451	Screw Machine Products
3452	Bolts, Nuts, Rivets, and Washers
3462	Iron and Steel Forgings
3463	Nonferrous Forgings
3465	Automotive Stampings
3466	Crowns and Closures
3469	Metal Stampings, N.E.C.
3471	Plating and Polishing
3479	Metal Coating and Allied Services

Issued March 1985



U.S. Department of Commerce
Malcolm Baldrige, Secretary
Clarence J. Brown, Deputy Secretary
Sidney Jones, Under Secretary for
Economic Affairs

BUREAU OF THE CENSUS
John G. Keane,
Director



BUREAU OF THE CENSUS
John G. Keane, Director
C. L. Kincannon, Deputy Director

Charles A. Waite, Associate Director for
Economic Fields

John H. Berry, Assistant Director for
Economic and Agriculture Censuses

INDUSTRY DIVISION
Gaylord E. Worden, Chief

ACKNOWLEDGMENTS—Many persons participated in the various activities of the 1982 Census of Manufactures. Primary direction of the program was performed by **Shirley Kallek**, Associate Director for Economic Fields (until May 1983), **Charles A. Waite**, her successor, and **Michael G. Farrell**, Assistant Director for Economic and Agriculture Censuses (until August 1984), and **John H. Berry**, his successor.

This report was prepared in the Industry Division under the general direction of **Roger H. Bugenhagen**, Chief (until April 1983), and **Gaylord E. Worden**, his successor. **John P. Govoni**, Assistant Chief for Census/Annual Survey of Manufactures (ASM) Programs, was responsible for the overall management of the census of manufactures. He guided the planning and implementation of the project and coordinated activities with other divisions.

Program responsibility was shared by the following individuals who participated importantly in the entire program: **John P. McNamee**, Chief, Minerals Branch; **Dale W. Gordon**, Chief, Census/ASM Durables Branch; **Michael J. Zampogna**, Chief, Census/ASM Nondurables Branch; **Bernard J. Fitzpatrick**, Chief, Census Special Reports Branch (until April 1983); and **Bruce M. Goldhrsch**, his successor; **Kenneth I. Hansen**, Chief, Annual Survey of Manufactures Branch; **Malcolm E. Bernhardt**, Chief, Current Durables Branch; and **Carole A. Ambler**, Chief, Current Nondurables Branch.

John H. Ambler, Chief, Rubber, Plastics, Glass, and Metals Section, assisted by **Sandra Ehni**, was directly responsible for the analysis of the data and preparation of this report.

Dr. Edward A. Robinson, Senior Industry Statistician, made significant contributions to the basic economic concepts and content of the census. The computer processing systems were developed and coordinated under the direction of **William E. Norfolk**, Assistant Chief for Operations. **Sarah A. Mathis**, Chief, Census Programming Branch, was responsible for implementation of the computer systems, and the computer programs were prepared under the supervision of **David Onions** and **Gerald S. Turnage**, assisted by **Barbara A. Lambert**. The mathematical techniques and quality control requirements were developed by **Preston J. Waite**, Assistant Chief for Research and Methodology, assisted by **Stacey Cole**, **Pamela McKee**, **Amella M. Perego**, **Magdalena Ramos**, and **Ann M. Stephens**.

Industry classification was controlled by **Bruce M. Goldhrsch**; coordination activities with Data Preparation Division were carried out by **Eric Taylor**; and the various phases of the publication process were coordinated by **Lille Mae Skinner**. Other persons made important contributions in such areas as developing specifications, procedures, and resolving problems. They include **Richard J. Steiner**, **Robert A. Rosati**, **Richard Sweeney**, **Cyr F. Linolis**, **Leonard Pomeroy**, **Patricia L. Horning**, and **Dennis L. Wagner**.

Systems and procedures for mailout, receipt, correspondence, data input, industry classification, other clerical processing, administrative record

processing, and quality control, along with the associated electronic computer programs, were developed in the Economic Surveys Division, **W. Joel Richardson**, Chief.

Planning, design, review, and composition of report forms were performed in the Administrative Services Division, **Robert L. Kirkland**, Chief.

Publication planning, design, editorial review, composition, and printing procurement were performed in the Publications Services Division, **Raymond J. Koski**, Chief.

Geographic coding procedures and associated computer programs were developed in the Geography Division, **Robert W. Marx**, Chief.

Mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review were performed in the Data Preparation Division, **Don L. Adams**, Chief.

Computer processing was performed in the Computer Services Division, **C. Thomas DiNenna**, Chief (until February 1984), and **John E. Halterman**, his successor.

Photocomposition programs for the statistical tables were developed in the Systems Support Division, **Larry J. Patin**, Chief (until October 1983), and **Arnold E. Levin**, his successor.

Special-purpose computer programs for disclosure analysis were developed in the Business Division, **Gerald F. Cranford**, Chief (until December 1983), and **Howard N. Hamilton**, his successor.

The overall planning and review of the census operations were performed by the staff of the office of the Assistant Director for Economic and Agriculture Censuses.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

Library of Congress Cataloging in Publication Data

Census of manufactures (1982)
1982 census of manufactures.

Contents: [1] Geographic area series — [2] Industry series.

Supt. of Docs. no.: C 3.24/8: MC82-I

1. United States—Manufactures—Statistics.

I. United States. Bureau of the Census. II. Title.

HD9724.C4 1984 338.4'767'0973 83-600153

For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

INTRODUCTION

ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was again taken for 1954, 1958, 1963, and 1967.

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was obtained first in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was taken first for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service industries was broadened from "selected services" to "all services, except religious organizations and private households." A total of 41 additional four-digit standard industrial classifications¹ (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was introduced first in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the

Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are disseminated widely by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

CENSUS OF MANUFACTURES

General

The 1982 Census of Manufactures is the 31st census of manufactures of the United States. For 1982, it was conducted jointly with the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Manufactures, is one of a series of 82 industry reports, each of which provides statistics for groups of related industries. Additional separate reports will be issued for each State and on special subjects, such as size of establishments, legal form of organization, and fuels and electric energy consumed.

These separate reports will subsequently be issued as portions of the final census volumes. Volume I, Subject Statistics, will show comparative statistics for industries, States, and standard metropolitan statistical areas. It also will show selected subjects, such as concentration ratios in manufacturing, selected materials consumed, manufacturing activity in government establishments, and water use in manufacturing. Volume II, Industry Statistics, will be a consolidation of reports for the 82 groups of industries showing the same information that is shown in this report. Volume III, Geographic Area Statistics, will contain establishment-based data (number of establishments, employment, payroll, value added by manufacture, and capital expenditures) for each State and its important standard metropolitan statistical areas, counties, and places, by industry groups and important individual industries. Totals for "all manufacturing" will be shown for counties and places with more than 450 manufacturing employees. The introduction to the final volumes will discuss, at greater length, many of the subjects described in this introduction. For example, the volume text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

Scope of Census and Definition of Manufacturing Industries

The 1982 Census of Manufactures covers all establishments employing one person or more primarily engaged in manufacturing as defined in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement.¹ This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines manufacturing as the mechanical or chemical transformation of inorganic or organic substances into new products. The assembly of component parts of products is also considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials handling equipment.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

IV INTRODUCTION

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for the trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is based on a scientifically selected sample of approximately 55,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply detailed information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services.

Establishment Basis of Reporting

The census of manufactures and the annual survey of manufactures are conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1982, as in earlier years, a minimum size limit was set for including establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

Manufacturing Universe and Census Report Forms

The 1982 Census of Manufactures universe includes approximately 345,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in this publication are described below.

1. Small Single-Unit Companies Not Sent a Report Form

In the 1982 Census of Manufactures, approximately 140,000 small single-establishment companies were excused from filing reports. Selection of these small

establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of other Federal agencies. The cutoffs were selected so that these administrative records cases would account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed report forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative record cases were given only a two- or three-digit SIC group. For the 1982 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments Sent a Report Form

The 205,000 establishments covered in the mail canvass were divided into three groups:

a. **ASM sample establishments**—This group consisted of approximately 55,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll,

and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. Results of the ASM inquiries are included in tables 3c and 3d of this report.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the approximately 450 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space was also provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM)—

Approximately 100,000 establishments were included in this group. A variable cutoff, based on administrative records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-unit establishments (non-ASM)—

This group consisted of approximately 50,000 establishments. For those industries where application of the variable cutoff for administrative records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same

data were collected on the short as well as the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the values of the n.s.k. categories.

Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the paperbound geographic area series, the bound volumes of the census of manufactures, and in a report issued as part of the 1982 Enterprise Statistics survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two or more establishments. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting, tax accounting, company sales and profit reports, and personnel accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in one of approximately 450 manufacturing industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing a single product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of plants must be significant in terms of its number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively became narrower with successive additions of numerical digits. There are 20 major groups (two-digit SIC), 143 industry groups (three-digit SIC), and approximately 450

industries (four-digit SIC). The product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 1,500 classes of products, identified by a five-digit code, and about 11,000 products, identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in making those products. For example, establishments engaged in blast furnace operations, refining of nonferrous metals from ore, or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for two successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is true particularly for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in tables 6a through 6c represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the

composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios, which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfer of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This industry report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6a represent the total value of shipments of products classified as primary to an industry that were shipped by all manufacturing establishments regardless of their industry classification.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

MICROFICHE AND COMPUTER TAPES

All the data in this report are available on microfiche. Selected data are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (NC) Not comparable.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- n.e.c. Not elsewhere classified.
- n.s.k. Not specified by kind.
- pt. Part.
- r Revised.
- SIC Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

Users' Guide for Locating Statistics

[For explanation of terms, see appendixes]

	Item	Four-digit industry statistics		
		Historical	Operating ratios	By geographic area
1	Number of companies	1a		
2	Number of manufacturing establishments	1a		2
	Employment and payroll:			
3	Number of employees	1a	1b	2
4	Payroll	1a	1b	2
5	Supplemental labor costs			
6	Production workers	1a	1b	2
7	Production-worker hours	1a	1b	2
8	Production-worker wages	1a	1b	2
	Shipments, cost of materials, and value added:			
9	Value of shipments (four-digit)	1a	1b	2
10	Product class shipments (five-digit)			
11	Product shipments (seven-digit)			
12	Value added by manufacture	1a	1b	2
13	Cost of materials	1a	1b	2
14	Fuels and electric energy			
15	Materials consumed by kind			
	Inventories:			
16	Total, end of year	1a		
17	By method of valuation			
18	By stage of fabrication			
	Capital expenditures, assets, rental payments, and purchased services:			
19	New capital expenditures	1a		2
20	Used plant and equipment expenditures			
21	Gross assets			
22	Depreciation			
23	Retirements of buildings and machinery			
24	Rental payments			
25	Purchased services			
	Ratios:			
26	Specialization	1a		
27	Coverage	1a		

*Number of companies with shipments of over \$100 thousand.

**Detailed information shown.

in This Report by Table Number

Four-digit industry statistics—Con.				Five-digit product class and seven-digit product statistics				
Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class	
3a					*6a			1
**3a	4	5a						2
3a	4	5a						3
3a	4	5a						4
**3d								5
**3a	4	5a						6
**3a	4	5a						7
3a	4	5a						8
3a	4	5a		5b, 5c				9
				5b, 5c	6a	6b	6c	10
					6a			11
3a	4	5a						12
**3a	4	5a						13
3a, 3d			7					14
								15
3b, 3c	4							16
3b, 3c								17
3b								18
**3a, **3d	4	5a						19
**3a, **3d								20
**3d								21
**3d								22
**3d								23
**3d								24
**3d								25
3a				5b				26
3a				5b				27

Int
Us
Da

TA

INI

1a

1b

2.

3a

3b

3c

3d

4.

5a

PF

5t

5c

5c

6a

6a

6t

6c

M

7.

A

A

B.

P.

M

Screw Machine Products, Fasteners and Washers; Metal Forgings and Stampings; and Metal Services

CONTENTS

[Page numbers listed here omit the prefix that appears as part of the number of each page]

	Page
Introduction	III
Users' Guide for Locating Statistics in This Report by Table Number	VIII
Description of Industries and Summary of Findings	2

TABLES

INDUSTRY STATISTICS

1a. Historical Statistics for the Industry: 1982 and Earlier Years	7
1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years	9
2. Industry Statistics for Selected States: 1982 and 1977	11
3a. Summary Statistics for the Industry: 1982	15
3b. Value of Inventories for the Industry: End of 1981 and 1982	15
3c. Inventories by Specific Method of Valuation for the Industry: End of 1982	16
3d. Supplemental Industry Statistics Based on Sample Estimates: 1982	17
4. Industry Statistics by Employment Size of Establishment: 1982	18
5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982	20

PRODUCT STATISTICS

5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years	22
5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982	22
5c-2. Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982	25
6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977	25
6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977	30
6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977	30
6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years	32

MATERIAL STATISTICS

7. Materials Consumed by Kind: 1982 and 1977	33
--	----

APPENDIXES

A. Explanation of Terms	A-1
B. Annual Survey of Manufactures Sampling and Estimating Methodologies	B-1

Publication Program	Inside back cover
---------------------------	-------------------

DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

SCREW MACHINE PRODUCTS, FASTENERS AND WASHERS; METAL FORGINGS AND STAMPINGS; AND METAL SERVICES

This report shows 1982 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC Code and Title

3451	Screw Machine Products
3452	Bolts, Nuts, Rivets, and Washers
3462	Iron and Steel Forgings
3463	Nonferrous Forgings
3465	Automotive Stampings
3466	Crowns and Closures
3469	Metal Stampings, N.E.C.
3471	Plating and Polishing
3479	Metal Coating and Allied Services

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1a-5a) with product statistics (table 6a) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 supplement.¹

INDUSTRY 3451, SCREW MACHINE PRODUCTS

This industry comprises establishments primarily engaged in the manufacture of automatic or hand screw machine products from rod, bar, or tube stock of metal, fiber, plastics, or other material. The products of this industry consist of a wide variety

of unassembled parts and are usually manufactured on a job or order basis. Establishments primarily engaged in the manufacture of standard bolts, nuts, rivets, screws, and other industrial fasteners on headers, threaders, and nut-forming machines are classified in industry 3452.

In the 1982 Census of Manufactures, Industry 3451, Screw Machine Products, recorded employment of 41.8 thousand. The total value of shipments for establishments classified in this industry was \$2,173 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 5 percent below the 43.8 thousand reported in 1977. The leading States in employment in 1982 were Michigan, Illinois, Ohio, and California, accounting for approximately 52 percent of the industry's 1982 employment. This represents a shift from 1977 when Michigan, Illinois, Ohio, and Connecticut accounted for approximately 50 percent of the industry's employment.

Compared with 1981, employment decreased 12 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3451 shipped \$2,029 million of products primary to the industry, \$79 million of secondary products, and had \$65 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 96 percent (specialization ratio). In 1977, this specialization ratio also was 96 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 92 percent. The products primary to industry 3451, no matter in what industry they were produced, appear in table 6a and aggregate to \$2,160 million in current prices.

The total cost of materials and services used by establishments classified in the screw machine products industry amounted to \$832 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 19 percent of total value of shipments.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS

This industry comprises establishments primarily engaged in the manufacture of bolts, nuts, screws, rivets, washers, formed and threaded wire goods, and special industrial fasteners. Rolling mills engaged in the manufacture of similar products are classified in major group 33, and establishments primarily engaged in the manufacture of screw machine products in industry 3451.

In the 1982 Census of Manufactures, Industry 3452, Bolts, Nuts, Rivets, and Washers, recorded employment of 52.2 thousand. The total value of shipments for establishments classified in this industry was \$3,661 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 14 percent below the 60.9 thousand reported in 1977. The leading States in employment in 1982 were California, Illinois, Pennsylvania and Ohio, accounting for approximately 45 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 55 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 17 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3452 shipped \$3,240 million of products primary to the industry, \$244 million of secondary products, and had \$178 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 93 percent (specialization ratio). In 1977, this specialization ratio was 94 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 94 percent. The products primary to industry 3452, no matter in what industry they were produced, appear in table 6a and aggregate to \$3,401 million in current prices.

The total cost of materials and services used by establishments classified in the bolts, nuts, rivets, and washers industry amounted to \$1,588 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of total value of shipments.

INDUSTRY 3462, IRON AND STEEL FORGINGS

This industry comprises establishments primarily engaged in the manufacture of metal forgings. These establishments generally operate on a job or order basis, manufacturing metal forgings for sale to others or for interplant transfer. Establishments which produce metal forgings for incorporation in end products produced in the same establishment are classified on the basis of the end product.

In the 1982 Census of Manufactures, Industry 3462, Iron and Steel Forgings, recorded employment of 30.9 thousand. The total value of shipments for establishments classified in this industry was \$2,953 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 21 percent below the 39.1 thousand reported in 1977. The leading States in employment in 1982 were Ohio, Illinois, Wisconsin, and Michigan, accounting for approximately 55 percent of the industry's 1982 employment. Data for Ohio have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 65 percent of the industry's employment.

Compared with 1981, employment decreased 19 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3462 shipped \$2,557 million of products primary to the industry, \$313 million of secondary products, and had \$83 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 89 percent (specialization ratio). In 1977, this specialization ratio was 92 percent.

Establishments in this industry also accounted for 81 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 84 percent. The products primary to industry 3462, no matter in what industry they were produced, appear in table 6a and aggregate to \$3,161 million in current prices.

The total cost of materials and services used by establishments classified in the iron and steel forgings industry amounted to \$1,525 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of total value of shipments.

INDUSTRY 3463, NONFERROUS FORGINGS

This industry comprises establishments primarily engaged in the manufacture of nonferrous forgings, with or without the use of dies.

In the 1982 Census of Manufactures, Industry 3463, Nonferrous Forgings, recorded employment of 7.9 thousand. The total value of shipments for establishments classified in this industry was \$1,094 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 46 percent above the 5.4 thousand reported in 1977. The leading States in employment in 1982 were California, Ohio, Massachusetts, and Michigan, accounting for approximately 75 percent of the industry's 1982 employment. Data for Ohio, Massachusetts, and Michigan have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Ohio, California, Massachusetts, and Pennsylvania accounted for approximately 75 percent of the industry's employment.

Compared with 1981, employment decreased 8 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3463 shipped \$886 million of products primary to the industry, \$163 million of secondary products, and had \$45 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 84 percent (specialization ratio). In 1977, this specialization ratio was 87 percent.

Establishments in this industry also accounted for 73 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 67 percent. The products primary to industry 3463, no matter in what industry they were produced, appear in table 6a and aggregate to \$1,211 million in current prices.

The total cost of materials and services used by establishments classified in the nonferrous forgings industry amounted to \$569 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of total value of shipments.

INDUSTRY 3465, AUTOMOTIVE STAMPINGS

This industry comprises establishments primarily engaged in the manufacture of automotive stampings, such as body parts, hubs, and trim.

In the 1982 Census of Manufactures, Industry 3465, Automotive Stampings, recorded employment of 90.5 thousand. The total value of shipments for establishments classified in this industry was \$8,777 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 32 percent below the 132.4 thousand reported in 1977. The leading States in employment in 1982 were Michigan, Ohio, Illinois, and Indiana, accounting for approximately 80 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 80 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 5 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3465 shipped \$7,957 million of products primary to the industry, \$655 million of secondary products, and had \$166 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 92 percent (specialization ratio). In 1977, this specialization ratio also was 92 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 91 percent. The products primary to industry 3465, no matter in what industry they were produced, appear in table 6a and aggregate to \$9,041 million in current prices.

The total cost of materials and services used by establishments classified in the automotive stampings industry amounted to \$4,622 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

INDUSTRY 3466, CROWNS AND CLOSURES

This industry comprises establishments primarily engaged in the manufacture of metal crowns and closures. Establishments primarily engaged in the manufacture of plastics closures are classified in industry 3079.

In the 1982 Census of Manufactures, Industry 3466, Crowns and Closures, recorded employment of 6.7 thousand. The total value of shipments for establishments classified in this industry was \$805 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 15 percent below the 7.9 thousand reported in 1977. The leading States in employment in 1982 were Illinois, Pennsylvania, Indiana, and New Jersey, accounting for approximately 75 percent of the industry's 1982 employment. Data for New Jersey have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 70 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 6 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3466 shipped \$729 million of products primary to the industry, \$64 million of secondary products, and had \$13 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 92 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 86 percent. The products primary to industry 3466, no matter in what industry they were produced, appear in table 6a and aggregate to \$790 million in current prices.

The total cost of materials and services used by establishments classified in the crowns and closures industry amounted to \$442 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

INDUSTRY 3469, METAL STAMPINGS, N.E.C.

This industry comprises establishments primarily engaged in the manufacture of metal stampings and spun products, not elsewhere classified, including porcelain enameled products, such as household appliance housings and parts; utensils and consumer stamped and spun products, such as cooking and kitchen utensils; and other nonautomotive job stampings.

In the 1982 Census of Manufactures, Industry 3469, Metal Stampings, N.E.C., recorded employment of 100.4 thousand. The total value of shipments for establishments classified in this industry was \$6,438 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 3 percent below the 103.2 thousand reported in 1977. The leading States in employment in 1982 were Illinois, Ohio, California, and Massachusetts, accounting for approximately 41 percent of the industry's 1982 employment. This represents a shift from 1977 when Illinois, Ohio, California, and Wisconsin accounted for approximately 45 percent of the industry's employment.

Compared with 1981, employment decreased 11 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3469 shipped \$5,454 million of products primary to the industry, \$732 million of secondary products, and had \$252 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 88 percent (specialization ratio). In 1977, this specialization ratio also was 88 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio also was 88 percent. The products primary to industry 3469, no matter in what industry they were produced, appear in table 6a and aggregate to \$6,172 million in current prices.

The total cost of materials and services used by establishments classified in the metal stampings, n.e.c., industry amounted to \$2,986 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of total value of shipments.

INDUSTRY 3471, PLATING AND POLISHING

This industry comprises establishments primarily engaged in all types of electroplating, plating, anodizing, coloring, and finishing of metals and formed products for the trade. Most of the work done in this industry is done on materials owned by others.

In the 1982 Census of Manufactures, Industry 3471, Plating and Polishing, recorded employment of 61.9 thousand. The total value of shipments for establishments classified in this industry was \$2,731 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for

changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 1 percent above the 61.2 thousand reported in 1977. The leading States in employment in 1982 were California, Illinois, Michigan, and New York, accounting for approximately 45 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 47 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased less than 1 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3471 shipped \$2,600 million of products primary to the industry, \$89 million of secondary products, and had \$42 million of miscellaneous receipts.

The total cost of materials and services used by establishments classified in the plating and polishing industry amounted to \$1,038 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 23 percent of total value of shipments.

INDUSTRY 3479, METAL COATING AND ALLIED SERVICES

This industry comprises establishments primarily engaged in performing the following types of services on metals: enameling, lacquering, and varnishing metal products for the trade; hot-dip galvanizing of mill sheets, plates and bars, castings, and formed products fabricated of iron and steel; hot-dip coating such items with aluminum, lead, or zinc; retinning cans and utensils; engraving, chasing, and etching jewelry, silverware, notarial and other seals, and other metal products for the trade and for job

contracting for purposes other than printing; and other metal services, not elsewhere classified. While most of the work in this industry is performed on materials owned by others, establishments performing this work on their own materials are also included. Establishments primarily engaged in electroplating, plating, polishing, anodizing, coloring, and finishing metals and formed products for the trade are classified in industry 3471.

In the 1982 Census of Manufactures, Industry 3479, Metal Coating and Allied Services, recorded employment of 35.0 thousand. The total value of shipments for establishments classified in this industry was \$2,393 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 8 percent above the 32.3 thousand reported in 1977. The leading States in employment in 1982 were California, Texas, Ohio, and Illinois, accounting for approximately 44 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 40 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 12 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3479 shipped \$2,239 million of products primary to the industry, \$95 million of secondary products, and had \$59 million of miscellaneous receipts.

The total cost of materials and services used by establishments classified in the metal coating and allied services industry amounted to \$1,196 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 12 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year ¹	Com- panies ² (no.)	All establishments ³		All employees		Production workers			Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	End-of- year inven- tories ⁴ (million dollars)	Ratios	
		Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Special- ization (per- cent)	Cover- age (per- cent)
INDUSTRY 3451, SCREW MACHINE PRODUCTS															
1982 Census	1 744	1 787	644	41.8	718.9	33.7	65.2	503.2	1 328.0	831.6	2 173.1	77.2	297.0	96	94
1981 ASM	(NA)	(NA)	(NA)	47.7	786.5	39.4	80.7	557.5	1 471.2	1 061.4	2 537.7	79.4	323.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	52.3	777.0	42.8	84.9	557.8	1 476.9	1 055.5	2 520.2	96.4	324.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	51.7	739.8	43.9	89.3	537.6	1 534.1	990.9	2 483.0	79.8	312.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	48.5	638.4	40.8	82.3	463.0	1 257.4	857.5	2 097.5	80.0	273.5	(NA)	(NA)
1977 Census	1 727	1 770	654	43.8	551.6	36.0	74.3	395.5	1 023.9	762.2	1 771.7	71.9	230.6	96	92
1976 ASM	(NA)	(NA)	(NA)	40.8	465.6	33.3	67.5	326.0	858.5	613.3	1 456.6	38.2	200.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	40.5	433.7	32.8	65.0	308.3	795.4	529.9	1 326.7	47.9	180.0	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	48.3	492.5	40.1	84.0	359.0	979.9	628.2	1 586.6	45.3	218.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	48.8	460.2	40.5	86.0	332.9	894.2	601.7	1 480.4	58.5	172.0	(NA)	(NA)
1972 Census	1 781	1 804	612	40.5	357.3	33.2	68.2	257.9	648.5	424.3	1 063.8	33.2	115.7	96	90
1971 ASM	(NA)	(NA)	(NA)	39.1	318.3	31.6	64.4	222.1	565.7	389.9	957.0	18.7	110.7	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	45.1	355.9	37.0	76.1	249.2	631.2	414.3	1 042.4	32.1	118.6	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	49.9	395.8	42.0	89.3	295.6	723.4	439.3	1 161.0	49.0	102.6	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	50.3	375.4	42.3	89.0	279.2	683.9	408.1	1 090.4	48.3	96.2	(NA)	(NA)
1967 Census	1 847	1 874	681	49.0	349.1	41.5	88.2	258.5	641.5	386.2	1 021.5	49.7	93.6	96	90
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS															
1982 Census	781	903	450	52.2	1 008.1	37.2	69.1	644.6	1 981.2	1 588.1	3 661.3	109.8	945.0	93	95
1981 ASM	(NA)	(NA)	(NA)	63.2	1 176.3	47.0	93.4	787.3	2 573.9	1 932.0	4 484.9	148.4	969.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	65.8	1 115.2	49.0	97.9	752.2	2 465.2	1 865.9	4 311.5	168.5	927.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	69.7	1 114.5	52.4	106.6	769.7	2 465.0	1 981.0	4 366.8	144.9	890.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	64.5	986.9	48.9	100.5	678.8	2 113.7	1 745.6	3 811.3	139.5	804.8	(NA)	(NA)
1977 Census	722	857	448	60.9	862.4	45.6	93.9	587.6	1 840.3	1 510.1	3 319.5	112.3	714.3	94	94
1976 ASM	(NA)	(NA)	(NA)	58.8	754.8	43.8	87.5	509.3	1 656.6	1 306.0	2 939.4	83.7	718.6	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	56.1	651.7	40.6	80.1	433.6	1 459.8	1 123.3	2 581.3	74.2	614.6	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	66.1	749.6	51.2	105.7	530.9	1 775.3	1 281.5	2 966.8	107.6	653.8	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	61.2	649.5	47.3	101.3	451.4	1 442.8	1 005.9	2 438.4	62.4	453.8	(NA)	(NA)
1972 Census	580	678	396	60.1	590.7	46.0	96.6	407.7	1 196.8	851.9	2 027.6	55.7	407.8	93	91
1971 ASM	(NA)	(NA)	(NA)	57.7	510.6	43.4	88.0	339.1	981.2	675.4	1 663.2	57.9	383.3	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	62.7	533.7	47.1	95.9	354.2	990.5	676.9	1 658.1	59.8	386.6	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	68.4	572.8	52.1	111.0	399.3	1 118.7	740.4	1 847.6	79.9	374.5	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	68.1	535.3	52.4	111.2	370.0	1 064.5	717.0	1 763.0	63.7	357.6	(NA)	(NA)
1967 Census	577	662	392	67.2	498.1	52.2	108.5	347.2	979.4	690.1	1 643.9	70.7	320.8	94	90
INDUSTRY 3462, IRON AND STEEL FORGINGS															
1982 Census	337	381	221	30.9	692.5	22.5	40.9	464.1	1 352.6	1 524.6	2 952.5	158.4	620.8	89	81
1981 ASM	(NA)	(NA)	(NA)	38.1	845.3	29.3	56.2	594.6	1 855.6	2 040.6	3 864.2	181.0	564.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	38.8	780.3	29.8	57.7	555.7	1 544.7	1 918.8	3 475.6	148.6	528.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	40.2	759.9	31.3	63.3	562.8	1 557.1	1 970.3	3 490.8	153.8	575.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	41.4	725.7	32.6	64.6	538.6	1 474.7	1 739.2	3 191.3	118.3	506.6	(NA)	(NA)
1977 Census	312	358	231	39.1	641.5	31.0	60.8	474.8	1 301.4	1 505.4	2 795.7	126.7	452.7	92	84
1976 ASM	(NA)	(NA)	(NA)	37.6	537.2	30.4	57.0	400.8	1 126.8	1 228.8	2 353.5	118.7	390.2	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	36.3	490.8	29.4	56.8	371.1	1 046.1	1 165.7	2 198.7	77.5	353.3	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	39.4	503.5	32.4	65.1	392.7	995.3	1 144.6	2 105.3	54.7	382.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	38.2	460.6	30.8	63.4	359.0	822.3	918.9	1 720.2	38.2	300.0	(NA)	(NA)
1972 Census	252	280	180	34.3	387.2	27.8	55.2	299.5	661.8	761.8	1 416.1	28.1	219.4	92	68
1971 ASM	(NA)	(NA)	(NA)	33.1	335.1	26.6	49.9	254.0	548.8	613.2	1 162.2	24.6	189.7	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	35.9	350.1	28.7	56.3	264.6	555.5	624.4	1 186.4	36.5	180.5	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	40.4	378.6	32.8	67.3	290.4	658.7	740.9	1 395.2	37.9	215.5	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	39.3	352.9	31.7	64.8	269.6	607.5	675.9	1 288.8	37.4	206.1	(NA)	(NA)
1967 Census	248	272	189	41.2	345.9	33.4	67.2	265.6	607.4	657.2	1 261.6	45.0	200.1	90	72
INDUSTRY 3463, NONFERROUS FORGINGS															
1982 Census	59	64	46	7.9	200.7	5.7	10.6	128.7	462.1	569.3	1 093.8	100.3	302.6	84	73
1981 ASM	(NA)	(NA)	(NA)	8.6	203.3	6.4	13.3	140.9	510.0	651.2	1 168.5	42.5	288.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.0	189.7	6.8	13.3	132.0	483.0	604.3	1 048.6	39.0	295.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	8.0	158.6	6.0	12.7	116.4	416.9	453.4	823.5	27.4	238.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	6.2	115.8	4.7	9.6	83.2	274.9	315.5	569.8	24.6	163.5	(NA)	(NA)
1977 Census	43	47	31	5.4	93.7	4.2	8.2	64.8	240.7	234.9	456.7	12.2	123.8	87	67
1976 ASM	(NA)	(NA)	(NA)	5.2	84.1	3.8	7.2	57.1	205.8	191.6	401.3	10.5	100.6	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	6.1	86.9	4.5	9.0	60.6	193.0	185.7	386.2	13.8	104.8	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	6.4	88.2	5.0	10.7	64.4	202.0	178.6	354.4	7.1	114.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	6.1	74.6	4.6	9.8	54.0	141.2	154.8	283.0	9.0	81.4	(NA)	(NA)
1972 Census	40	46	33	5.8	63.7	4.5	9.0	45.4	104.0	118.9	222.5	7.0	60.0	84	63
1971 ASM	(NA)	(NA)	(NA)	6.3	60.7	4.5	8.7	40.6	116.5	123.5	220.8	4.7	62.3	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	7.1	68.4	5.2	10.9	46.6	101.7	137.5	237.3	5.1	81.4	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	9.9	95.4	7.2	15.2	63.7	151.5	182.3	329.3	14.8	89.2	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	9.3	84.6	6.8	14.6	57.6	143.0	170.7	310.5	22.5	79.3	(NA)	(NA)
1967 Census	37	41	31	10.1	87.5	7.4	16.5	61.4	154.4	178.0	333.1	32.4	72.2	67	54

See footnotes at end of table.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.

(Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes)

Year ¹	All establishments ³			All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories ⁴ (million dollars)	Ratios	
	Companies ² (no.)	Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (percent)	Coverage (percent)
INDUSTRY 3465, AUTOMOTIVE STAMPINGS															
1982 Census	566	668	434	90.5	2 292.6	74.5	145.2	1 792.4	4 114.4	4 621.6	8 777.4	465.0	804.7	92	88
1981 ASM	(NA)	(NA)	(NA)	95.1	2 393.8	79.2	151.2	1 873.7	4 444.7	4 553.0	8 960.7	844.4	849.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	100.9	2 253.6	83.8	155.9	1 738.1	4 182.5	4 271.0	8 497.3	610.0	864.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	125.3	2 552.6	106.4	208.0	2 013.1	4 940.0	5 491.8	10 425.9	390.9	1 000.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	136.7	2 642.1	116.6	237.1	2 120.1	5 180.1	5 583.8	10 697.6	401.4	1 087.1	(NA)	(NA)
1977 Census	495	591	432	132.4	2 446.0	112.5	236.8	1 956.6	4 654.5	5 130.8	9 739.2	292.2	948.3	92	91
1976 ASM	(NA)	(NA)	(NA)	123.1	2 024.4	104.1	213.5	1 601.5	3 934.8	4 200.5	8 070.5	176.1	861.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	107.4	1 526.8	90.0	173.0	1 178.6	2 872.4	3 247.0	6 116.2	215.5	608.6	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	121.7	1 622.6	102.1	202.1	1 264.6	3 011.6	3 122.6	6 103.0	225.5	734.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	135.4	1 743.7	114.1	242.7	1 385.0	3 141.3	2 983.7	6 085.9	171.5	585.6	(NA)	(NA)
1972 Census ⁵	388	453	364	123.3	1 485.4	103.0	217.5	1 174.6	2 663.8	2 624.5	5 286.0	117.5	447.0	92	92
INDUSTRY 3466, CROWNS AND CLOSURES															
1982 Census	48	64	36	6.7	143.5	5.4	10.6	106.8	372.4	441.7	804.8	21.6	140.7	92	92
1981 ASM	(NA)	(NA)	(NA)	7.1	143.9	5.8	11.7	107.7	335.0	437.5	765.8	30.1	127.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	7.2	128.2	5.8	11.5	96.3	293.3	390.3	678.7	19.4	123.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.9	114.2	5.6	11.3	86.1	276.8	349.1	631.1	17.0	117.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.3	108.9	5.9	11.6	81.6	277.0	310.5	574.1	14.1	125.0	(NA)	(NA)
1977 Census	42	56	43	7.9	104.8	6.5	12.6	80.2	265.4	283.2	536.9	17.1	121.0	95	86
1976 ASM	(NA)	(NA)	(NA)	7.6	96.7	6.3	13.0	75.2	239.0	290.3	522.4	10.7	95.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	7.5	88.3	6.1	12.4	67.3	218.0	265.6	479.9	13.3	93.8	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	8.1	83.8	6.7	13.5	63.6	211.9	228.2	431.5	10.5	101.6	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	7.3	72.9	5.9	11.8	54.4	169.7	187.1	355.2	7.8	71.1	(NA)	(NA)
1972 Census ⁵	42	53	48	8.1	74.1	6.7	13.4	55.1	166.7	180.9	343.5	8.3	62.6	88	83
INDUSTRY 3469, METAL STAMPINGS, N.E.C.															
1982 Census	2 718	2 843	1 157	100.4	1 782.7	75.6	146.3	1 154.0	3 414.2	2 986.4	6 437.7	200.1	1 014.7	88	88
1981 ASM	(NA)	(NA)	(NA)	112.8	1 796.9	90.4	176.1	1 241.4	3 648.9	3 538.8	7 160.6	217.1	948.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	113.8	1 643.5	91.6	175.3	1 134.5	3 351.3	3 215.3	6 577.5	221.5	914.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	114.5	1 542.4	93.1	180.2	1 084.3	3 234.5	3 097.2	6 278.2	202.0	918.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	106.2	1 356.3	85.6	168.8	932.6	2 705.9	2 664.9	5 329.1	179.3	793.0	(NA)	(NA)
1977 Census	2 544	2 663	1 138	103.2	1 225.4	82.0	161.2	842.5	2 451.5	2 318.0	4 735.7	154.7	715.7	88	88
1976 ASM	(NA)	(NA)	(NA)	91.9	1 045.6	72.7	142.1	711.2	2 047.7	1 892.2	3 902.1	114.0	596.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	83.3	884.5	64.3	123.0	586.8	1 709.0	1 503.4	3 249.6	95.0	507.3	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	101.1	981.2	81.2	159.0	684.8	1 935.6	1 700.8	3 596.8	123.5	604.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	101.9	917.0	83.4	165.5	655.8	1 696.7	1 436.5	3 097.5	93.4	483.3	(NA)	(NA)
1972 Census ⁵	2 277	2 356	982	92.0	781.0	74.2	146.5	554.8	1 461.0	1 247.9	2 688.8	76.7	382.3	86	85
INDUSTRY 3471, PLATING AND POLISHING															
1982 Census	3 367	3 450	898	61.9	919.0	49.7	98.1	631.9	1 693.9	1 038.4	2 731.4	109.2	225.5	(⁶)	(⁶)
1981 ASM	(NA)	(NA)	(NA)	62.0	855.4	50.2	98.6	598.8	1 613.1	969.6	2 594.6	102.4	163.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	63.1	803.6	52.1	101.5	551.6	1 613.9	956.5	2 556.9	105.1	205.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	64.1	729.9	53.8	106.1	508.8	1 487.8	928.6	2 412.7	110.3	151.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	65.9	724.1	55.4	111.5	507.2	1 413.1	784.3	2 194.9	194.6	140.4	(NA)	(NA)
1977 Census	3 344	3 447	904	61.2	634.8	51.2	101.3	446.1	1 181.8	674.1	1 848.5	73.2	128.3	(⁶)	(⁶)
1976 ASM	(NA)	(NA)	(NA)	58.5	545.8	49.2	94.6	384.1	1 092.1	524.9	1 610.0	70.6	109.8	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	51.2	467.0	42.2	81.6	318.1	861.1	443.7	1 319.0	47.8	89.8	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	55.8	477.3	46.4	89.0	333.9	949.5	386.9	1 332.8	51.1	83.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	60.9	478.4	50.5	99.2	347.5	880.9	384.1	1 263.7	39.5	72.0	(NA)	(NA)
1972 Census	3 180	3 264	825	54.6	403.1	45.2	89.2	289.5	741.2	294.8	1 034.5	40.2	51.3	(⁶)	(⁶)
1971 ASM	(NA)	(NA)	(NA)	52.9	364.3	42.7	85.1	262.6	669.3	264.9	934.9	31.1	48.9	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	57.7	372.9	46.4	93.8	270.9	691.2	275.4	964.3	34.3	50.9	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	62.9	399.7	51.8	101.2	294.4	738.4	282.4	1 020.7	47.0	53.8	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	59.2	363.8	49.4	97.6	270.6	642.6	251.9	892.5	45.0	47.7	(NA)	(NA)
1967 Census	6 170	3 241	855	55.1	323.2	46.8	92.5	239.1	574.8	218.1	791.1	33.1	36.9	(⁶)	(⁶)
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES															
1982 Census	1 524	1 620	507	35.0	599.1	27.5	54.1	403.7	1 202.6	1 195.9	2 393.4	91.0	292.1	(⁶)	(⁶)
1981 ASM	(NA)	(NA)	(NA)	39.6	623.3	32.0	65.4	440.6	1 399.9	1 137.4	2 528.6	136.8	194.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	38.5	541.4	31.2	60.9	383.5	1 175.3	1 094.7	2 278.7	53.7	205.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	38.1	516.3	31.0	61.4	371.3	1 124.8	1 037.9	2 156.5	81.8	206.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.7	415.3	27.2	54.5	285.8	895.5	937.6	1 825.1	70.9	175.2	(NA)	(NA)
1977 Census	1 556	1 648	469	32.3	373.7	25.8	52.2	260.2	781.1	831.7	1 607.7	47.9	159.0	(⁶)	(⁶)
1976 ASM	(NA)	(NA)	(NA)	31.9	356.6	25.3	51.1	260.0	726.7	583.1	1 490.7	39.2	130.9	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	30.3	318.7	23.8	48.0	230.3	579.7	649.5	1 065.5	56.4	99.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	33.5	302.9	26.6	52.9	219.1	561.8	607.4	973.1	44.8	122.4	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	30.4	253.8	24.9	51.0	182.9	428.1	459.7	897.6	26.3	83.1	(NA)	(NA)
1972 Census	1 427	1 497	372	27.6	221.1	22.5	43.5	155.8	379.2	328.7	701.8	24.0	64.8	(⁶)	(⁶)
1971 ASM	(NA)	(NA)	(NA)	22.3	178.3	18.3	36.3	123.3	294.4	251.9	550.0	18.0	53.1	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	23.6	176.8	19.5	39.0	123.5	295.0	235.6	527.1	21.2	54.1	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	28.1	166.2	24.0	46.5	125.3	314.7	197.9	518.6	18.5	40.3	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	25.6	162.7	22.0	44.2	120.9	289.1	182.9	472.1	16.3	39.5	(NA)	(NA)
1967 Census	1 393	1 443	349	26.2	158.0	22.2	44.9	116.9	289.6	185.4	471.3	22.0	36.7	(⁶)	(⁶)

See footnotes at end of table.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.

¹In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the Industry chapter.

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during year.

⁴Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown below:

Industries	End-of-1981 inventories (million dollars)	End-of-1982 inventories (million dollars)	1982 value added by manufacture (million dollars)
Industry 3451, Screw machine products	308.7	274.3	1 330.1
Industry 3452, Bolts, nuts, rivets, and washers	964.8	839.9	1 990.2
Industry 3462, Iron and steel forgings	553.5	443.8	1 378.0
Industry 3463, Nonferrous forgings	308.5	225.0	477.0
Industry 3465, Automotive stampings	905.0	764.7	4 115.9
Industry 3466, Crowns and closures	122.0	128.4	372.1
Industry 3469, Metal stampings, n.e.c.	941.3	859.9	3 415.1
Industry 3471, Plating and polishing	212.3	220.5	1 694.7
Industry 3479, Metal coating and allied services	278.8	277.6	1 203.2

See Inventories in appendixes for explanation of the difference between end-of-1981 inventory figure shown in table and corresponding figure shown in footnote.

⁵Industry was defined or redefined for 1972 Census of Manufactures, so data are available only for years shown.

⁶Relationships are not meaningful because of predominance of miscellaneous receipts, particularly receipts for contract and commission work on materials owned by others.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3451, SCREW MACHINE PRODUCTS									
1982 Census	17 199	81	1 935	7.72	38	71	31 770	54	20.37
1981 ASM	16 488	83	2 048	6.91	42	73	30 843	53	18.23
1980 ASM	14 857	82	1 984	6.57	42	73	28 239	53	17.40
1979 ASM	14 309	85	2 034	6.02	40	70	29 673	48	17.18
1978 ASM	13 163	84	2 017	5.63	41	71	25 926	51	15.28
1977 Census	12 594	82	2 064	5.32	43	74	23 377	54	13.78
1976 ASM	11 412	82	2 027	4.83	42	74	21 042	54	12.72
1975 ASM	10 709	81	1 982	4.74	40	73	19 640	55	12.24
1974 ASM	10 197	83	2 095	4.27	40	71	20 288	50	11.67
1973 ASM	9 430	83	2 123	3.87	41	72	18 324	51	10.40
1972 Census	8 822	82	2 054	3.78	40	73	16 012	55	9.51
1971 ASM	8 141	81	2 038	3.45	41	74	14 468	56	8.78
1970 ASM	7 891	82	2 057	3.27	40	74	13 996	56	8.29
1969 ASM	7 932	84	2 126	3.31	38	72	14 497	55	8.10
1968 ASM	7 463	84	2 104	3.14	37	72	13 596	55	7.68
1967 Census	7 124	85	2 125	2.93	38	72	13 092	54	7.27
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS									
1982 Census	19 312	71	1 858	9.33	43	71	37 954	51	28.67
1981 ASM	18 612	74	1 987	8.43	43	69	40 726	46	27.56
1980 ASM	16 948	74	1 998	7.68	43	69	37 465	45	25.18
1979 ASM	15 990	75	2 034	7.22	45	71	35 366	45	23.12
1978 ASM	15 301	76	2 055	6.75	46	72	32 771	47	21.03
1977 Census	14 161	75	2 059	6.26	45	71	30 218	47	19.60
1976 ASM	12 837	74	1 998	5.82	44	70	28 173	46	18.93
1975 ASM	11 617	72	1 973	5.41	44	69	26 021	45	18.22
1974 ASM	11 340	77	2 064	5.02	43	68	26 858	42	16.80
1973 ASM	10 613	77	2 142	4.46	41	68	23 575	45	14.24
1972 Census	9 829	77	2 100	4.22	42	71	19 913	49	12.39
1971 ASM	8 849	75	2 028	3.85	41	71	17 005	52	11.15
1970 ASM	8 512	75	2 036	3.69	41	73	15 797	54	10.33
1969 ASM	8 374	76	2 131	3.60	40	71	16 355	51	10.08
1968 ASM	7 860	77	2 122	3.33	41	71	15 631	50	9.57
1967 Census	7 412	78	2 079	3.20	42	72	14 574	51	9.03

See footnotes at end of table.

Table 1b. **Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3462, IRON AND STEEL FORGINGS									
1982 Census	22 411	73	1 818	11.35	52	75	43 773	51	33.07
1981 ASM	22 186	77	1 918	10.58	53	75	48 703	46	33.02
1980 ASM	20 111	77	1 936	9.63	55	78	39 812	51	26.77
1979 ASM	18 903	78	2 022	8.89	56	78	38 734	49	24.60
1978 ASM	17 529	79	1 982	8.34	54	77	35 621	49	22.83
1977 Census	16 407	79	1 961	7.81	54	77	33 284	49	21.40
1976 ASM	14 287	81	1 875	7.03	52	75	29 968	48	19.77
1975 ASM	13 521	81	1 932	6.53	53	75	28 818	47	18.42
1974 ASM	12 779	82	2 009	6.03	54	78	25 261	51	15.29
1973 ASM	12 058	81	2 058	5.66	53	80	21 526	56	12.97
1972 Census	11 289	81	1 986	5.43	54	81	19 294	59	11.99
1971 ASM	10 124	80	1 876	5.09	53	82	16 580	61	11.00
1970 ASM	9 752	80	1 962	4.70	53	82	15 474	63	9.87
1969 ASM	9 371	81	2 052	4.32	53	80	16 304	57	9.79
1968 ASM	8 980	81	2 044	4.16	52	80	15 458	58	9.38
1967 Census	8 396	81	2 012	3.95	52	80	14 743	57	9.04
INDUSTRY 3463, NONFERROUS FORGINGS									
1982 Census	25 405	72	1 860	12.14	52	70	58 494	43	43.59
1981 ASM	23 640	74	2 078	10.59	56	73	59 302	40	38.35
1980 ASM	21 078	76	1 956	9.92	58	76	53 667	39	36.32
1979 ASM	19 825	75	2 117	9.17	55	74	52 112	38	32.83
1978 ASM	18 677	76	2 043	8.67	55	76	44 339	42	28.64
1977 Census	17 352	78	1 952	7.90	51	72	44 574	39	29.35
1976 ASM	16 173	73	1 895	7.93	48	69	39 577	41	28.58
1975 ASM	14 246	74	2 000	6.73	48	71	31 639	45	21.44
1974 ASM	13 781	78	2 140	6.02	50	75	31 563	44	18.88
1973 ASM	12 230	75	2 130	5.51	55	81	23 148	53	14.41
1972 Census	10 983	78	2 000	5.04	53	82	17 931	61	11.56
1971 ASM	9 635	71	1 933	4.67	56	83	18 492	52	13.39
1970 ASM	9 634	73	2 096	4.28	58	87	14 324	67	9.33
1969 ASM	9 636	73	2 111	4.19	55	84	15 303	63	9.97
1968 ASM	9 097	73	2 147	3.95	55	82	15 376	59	9.79
1967 Census	8 663	73	2 230	3.72	53	80	15 287	57	9.36
INDUSTRY 3465, AUTOMOTIVE STAMPINGS									
1982 Census	25 333	82	1 949	12.34	53	79	45 463	56	28.34
1981 ASM	25 171	83	1 909	12.39	51	78	46 737	54	29.40
1980 ASM	22 335	83	1 860	11.15	50	77	41 452	54	26.83
1979 ASM	20 372	85	1 955	9.68	53	77	39 425	52	23.75
1978 ASM	19 328	85	2 033	8.94	52	77	37 894	51	21.85
1977 Census	18 474	85	2 105	8.26	53	78	35 155	53	19.66
1976 ASM	16 445	85	2 051	7.50	52	77	31 964	51	18.43
1975 ASM	14 216	84	1 922	6.81	53	78	26 745	53	16.60
1974 ASM	13 333	84	1 979	6.26	51	78	24 746	54	14.90
1973 ASM	12 878	84	2 127	5.71	49	78	23 200	56	12.94
1972 Census	12 047	84	2 112	5.40	50	78	21 604	56	12.25
INDUSTRY 3466, CROWNS AND CLOSURES									
1982 Census	21 418	81	1 963	10.08	55	73	55 582	39	35.13
1981 ASM	20 268	82	2 017	9.21	57	76	47 183	43	28.63
1980 ASM	17 806	81	1 983	8.37	58	76	40 736	44	25.50
1979 ASM	16 551	81	2 018	7.62	55	73	40 116	41	24.50
1978 ASM	14 918	81	1 966	7.03	54	73	37 945	39	23.88
1977 Census	13 266	82	1 938	6.37	53	72	33 595	39	21.06
1976 ASM	12 724	83	2 063	5.78	56	74	31 447	40	18.38
1975 ASM	11 773	81	2 033	5.43	55	74	29 067	41	17.58
1974 ASM	10 346	83	2 015	4.71	53	72	26 160	40	15.70
1973 ASM	9 986	81	2 000	4.61	53	73	23 247	43	14.38
1972 Census	9 148	83	2 000	4.11	53	74	20 580	44	12.44
INDUSTRY 3469, METAL STAMPINGS, N.E.C.									
1982 Census	17 756	75	1 935	7.89	46	74	34 006	52	23.34
1981 ASM	15 930	80	1 948	7.05	49	75	32 348	49	20.72
1980 ASM	14 442	80	1 914	6.47	49	74	29 465	49	19.13
1979 ASM	13 471	81	1 936	6.02	49	74	28 249	48	17.95
1978 ASM	12 771	81	1 972	5.52	50	75	25 479	50	16.03
1977 Census	11 874	79	1 966	5.23	49	75	23 755	50	15.21
1976 ASM	11 378	79	1 955	5.00	48	75	22 282	51	14.41
1975 ASM	10 618	77	1 913	4.77	46	73	20 516	52	13.89
1974 ASM	9 705	80	1 958	4.31	47	75	19 145	51	12.17
1973 ASM	8 999	82	1 984	3.96	46	76	16 651	54	10.25
1972 Census	8 489	81	1 974	3.79	46	75	15 880	53	9.97
INDUSTRY 3471, PLATING AND POLISHING									
1982 Census	14 847	80	1 974	6.44	38	72	27 365	54	17.27
1981 ASM	13 797	81	1 964	6.07	37	70	26 018	53	16.36
1980 ASM	12 735	83	1 948	5.43	37	69	25 577	50	15.90
1979 ASM	11 387	84	1 972	4.80	38	69	23 211	49	14.02
1978 ASM	10 988	84	2 013	4.55	36	69	21 443	51	12.67
1977 Census	10 373	84	1 979	4.40	36	71	19 310	54	11.67
1976 ASM	9 330	84	1 923	4.06	33	67	18 668	50	11.54
1975 ASM	9 121	82	1 934	3.90	34	69	16 818	54	10.55
1974 ASM	8 554	83	1 918	3.75	29	65	17 016	50	10.67
1973 ASM	7 856	83	1 964	3.50	30	68	14 465	54	8.88

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3471, PLATING AND POLISHING—Con.									
1972 Census	7 383	83	1 973	3.25	28	67	13 575	54	8.31
1971 ASM	6 887	81	1 993	3.09	28	67	12 652	54	7.86
1970 ASM	6 463	80	2 022	2.89	29	67	11 979	54	7.37
1969 ASM	6 355	82	1 954	2.91	28	67	11 739	54	7.30
1968 ASM	6 145	83	1 976	2.77	28	69	10 855	57	6.58
1967 Census	5 866	85	1 976	2.58	28	68	10 432	56	6.21
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES									
1982 Census	17 117	79	1 967	7.46	50	75	34 360	50	22.23
1981 ASM	15 740	81	2 044	6.74	45	70	35 351	45	21.41
1980 ASM	14 062	81	1 952	6.30	48	72	30 527	46	19.30
1979 ASM	13 551	81	1 981	6.05	48	72	29 522	46	18.32
1978 ASM	12 323	81	2 004	5.24	51	74	26 573	46	16.43
1977 Census	11 570	80	2 015	4.98	52	75	24 183	48	14.96
1976 ASM	11 179	79	2 020	5.09	39	63	22 781	49	14.22
1975 ASM	10 518	79	2 017	4.80	61	91	19 132	55	12.08
1974 ASM	9 042	79	1 989	4.14	62	94	16 770	54	10.62
1973 ASM	8 349	82	2 048	3.59	51	79	14 082	59	8.39
1972 Census	8 011	82	1 933	3.58	47	78	13 739	58	8.72
1971 ASM	7 996	82	1 984	3.40	46	78	13 202	61	8.11
1970 ASM	7 492	83	2 000	3.17	45	78	12 500	60	7.56
1969 ASM	5 915	85	1 938	2.69	38	70	11 199	53	6.77
1968 ASM	6 355	86	2 009	2.74	39	73	11 293	56	6.54
1967 Census	6 031	85	2 023	2.60	39	73	11 053	55	6.45

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1982 and 1977

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982												1977	
	E¹	All establishments²		All employees		Production workers			Value added by manufacture⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3451, SCREW MACHINE PRODUCTS														
United States -----	-	1 787	644	41.8	718.9	33.7	65.2	503.2	1 328.0	831.6	2 173.1	77.2	43.8	1 023.9
Arizona -----	E5	9	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California -----	E1	180	45	3.4	59.9	2.6	5.5	40.4	105.6	47.4	153.9	4.4	2.8	62.4
Connecticut -----	-	146	54	3.3	49.6	2.8	5.2	36.2	90.6	47.3	138.3	9.2	3.6	64.8
Florida -----	E4	36	8	.6	9.0	.5	1.0	6.4	17.4	7.6	25.0	(D)	.4	8.3
Illinois -----	E1	247	84	6.0	107.1	4.9	9.4	76.5	199.4	116.3	317.5	16.1	6.9	156.8
Indiana -----	-	64	27	1.7	30.1	1.4	2.7	20.8	50.3	33.4	85.1	2.6	2.2	46.6
Iowa -----	-	11	6	.5	7.6	.3	.6	4.8	17.6	13.8	30.8	.9	CC	(D)
Massachusetts -----	-	79	31	2.0	33.5	1.6	3.2	23.1	57.1	31.1	87.6	2.2	2.1	42.3
Michigan -----	-	262	96	6.0	115.0	4.7	9.1	78.3	226.0	200.5	430.3	11.8	7.3	209.2
Minnesota -----	-	34	17	1.1	21.1	.9	1.7	14.9	37.6	18.9	56.7	2.1	1.1	22.8
Missouri -----	-	31	15	.8	14.1	.6	1.3	9.9	28.5	14.6	43.5	1.0	1.0	21.4
Nebraska -----	E3	6	3	.2	2.7	.2	.3	1.8	4.5	2.1	6.7	.2	AA	(D)
New Jersey -----	-	89	31	2.1	35.4	1.7	3.3	25.7	58.7	34.8	94.6	2.4	1.8	38.0
New York -----	-	128	46	2.9	49.9	2.4	4.8	34.4	95.6	60.0	155.8	5.0	2.6	60.3
Ohio -----	-	175	76	4.5	76.5	3.6	7.0	53.9	143.8	95.2	239.9	7.9	5.5	135.4
Oklahoma -----	-	9	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon -----	-	7	4	.2	5.4	.2	.4	4.3	9.2	4.2	13.4	.3	(NA)	(NA)
Pennsylvania -----	E3	60	24	1.4	22.1	1.2	2.2	15.3	42.1	24.6	66.9	2.4	1.9	45.6
Rhode Island -----	-	34	8	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	9.6
Tennessee -----	-	10	7	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	6.0
Texas -----	E2	24	9	.5	9.4	.4	.9	6.6	19.6	10.8	31.0	.6	.4	11.6
Vermont -----	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia -----	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin -----	-	63	22	1.3	24.2	1.1	2.0	16.3	41.6	18.4	60.2	1.6	1.4	35.3

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982												1977	
	E ¹	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS														
United States	-	903	450	52.2	1 008.1	37.2	69.1	644.6	1 981.2	1 588.1	3 661.3	109.8	60.9	1 840.3
Alabama	-	14	7	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Arkansas	E2	6	1	.2	2.5	.1	.2	1.5	4.4	4.8	9.4	.2	BB	(D)
California	-	108	57	9.3	189.2	6.8	13.3	124.4	404.9	180.9	606.7	21.6	7.7	223.4
Colorado	E4	7	3	.2	3.3	.2	.3	2.2	6.9	4.5	11.5	.2	(NA)	(NA)
Connecticut	-	41	24	2.5	48.6	1.6	3.2	27.4	99.0	58.6	162.1	4.8	3.5	110.1
Florida	-	16	6	.8	11.5	.6	1.0	8.2	21.7	17.2	39.1	1.0	.3	7.8
Illinois	-	133	67	8.4	164.8	6.2	11.0	109.4	289.3	274.1	573.2	16.9	11.6	346.0
Indiana	-	25	14	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	45.1
Iowa	-	6	4	.4	5.4	.2	.4	3.2	10.2	12.3	22.7	.5	AA	(D)
Kentucky	-	11	6	.9	16.7	.5	1.0	10.1	31.4	50.7	89.6	1.5	.8	27.8
Massachusetts	E1	35	16	2.4	46.0	1.7	3.1	28.9	80.9	63.7	143.9	1.6	2.9	67.7
Michigan	-	100	49	3.4	76.0	2.5	4.9	50.2	161.5	179.1	343.8	7.7	5.3	202.8
Minnesota	-	10	4	.3	6.3	.2	.4	3.9	12.2	8.3	20.7	.3	.4	16.4
Missouri	-	10	4	.2	3.3	.1	.2	2.1	5.9	5.4	11.0	.2	.2	5.6
Nevada	-	3	3	.2	2.9	.1	.3	1.6	7.9	4.4	12.3	.5	(NA)	(NA)
New Hampshire	-	6	6	.4	5.6	.2	.4	2.9	11.9	6.9	19.0	.9	.3	7.6
New Jersey	-	41	18	2.1	45.0	1.3	2.7	25.5	99.4	68.0	169.3	5.0	2.3	71.7
New York	-	43	15	2.0	31.9	1.4	2.6	19.5	77.4	45.3	126.7	3.4	2.5	57.2
North Carolina	E1	10	6	.8	11.6	.6	1.0	7.5	22.6	20.0	46.3	(D)	CC	(D)
Ohio	-	87	50	4.8	95.4	3.4	6.2	58.2	186.0	169.8	365.8	11.2	7.0	223.9
Oklahoma	-	7	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	3.3
Pennsylvania	-	58	36	6.2	124.5	4.5	7.7	83.5	213.0	164.8	395.8	12.7	7.2	212.1
Rhode Island	-	13	9	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	15.1
Tennessee	-	6	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	12.1
Texas	E2	38	17	1.4	25.5	.9	1.8	13.7	52.7	49.4	101.9	8.8	1.4	45.3
Virginia	-	5	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Washington	-	5	3	.2	4.1	.1	.2	2.3	6.1	9.3	16.5	.3	(NA)	(NA)
Wisconsin	-	25	10	.9	18.7	.7	1.4	12.4	36.1	25.6	63.0	2.1	1.1	34.6
INDUSTRY 3462, IRON AND STEEL FORGINGS														
United States	-	381	221	30.9	692.5	22.5	40.9	464.1	1 352.6	1 524.6	2 952.5	158.4	39.1	1 301.4
Alabama	-	3	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
California	E1	29	12	1.0	26.6	.7	1.5	18.3	64.6	78.0	145.2	14.5	1.5	62.5
Colorado	E1	4	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	E1	6	4	.4	7.3	.3	.8	4.9	13.7	18.4	32.7	1.0	.5	14.9
Illinois	-	50	27	4.0	89.1	2.9	4.9	53.3	151.2	171.1	329.9	19.8	5.9	212.2
Indiana	-	11	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Iowa	E1	6	3	.3	5.5	.2	.3	3.6	11.9	6.5	18.2	(D)	AA	(D)
Kansas	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	E1	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	-	9	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Michigan	-	40	27	3.2	79.1	2.5	4.3	55.7	152.6	171.5	327.7	11.2	5.3	188.6
New Jersey	E1	11	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	8.5
New York	E3	18	12	.9	16.6	.7	1.3	12.1	40.6	39.2	80.3	1.5	CC	(D)
Ohio	-	55	41	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	7.8	258.3
Oregon	E1	5	3	.2	3.4	.2	.3	2.3	5.4	5.0	10.9	(D)	AA	(D)
Pennsylvania	-	32	20	2.9	59.9	2.0	3.6	36.6	113.9	139.3	256.9	18.9	3.7	111.1
Tennessee	-	12	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Texas	-	30	20	2.8	54.8	2.0	4.0	36.7	117.4	150.4	273.1	30.1	2.4	112.6
Wisconsin	-	12	7	4.2	109.0	2.9	5.0	75.7	182.4	150.2	365.0	9.3	5.5	144.0
INDUSTRY 3463, NONFERROUS FORGINGS														
United States	-	64	46	7.9	200.7	5.7	10.6	128.7	462.1	569.3	1 093.8	100.3	5.4	240.7
California	-	26	20	2.8	67.3	1.9	3.5	38.0	166.8	182.8	362.5	39.5	1.1	45.1
Connecticut	-	4	4	.4	9.4	.3	.6	5.3	23.0	18.5	41.5	(D)	BB	(D)
Illinois	E2	5	4	.2	4.1	.2	.4	2.9	7.8	7.6	15.5	.3	.2	5.0
Indiana	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	-	2	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Michigan	-	5	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nevada	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Ohio	-	5	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Pennsylvania	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	21.1

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982												1977	
	E¹	All establishments²		All employees		Production workers			Value added by manufacture⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3465, AUTOMOTIVE STAMPINGS														
United States	-	668	434	90.5	2 292.6	74.5	145.2	1 792.4	4 114.4	4 621.6	8 777.4	465.0	132.4	4 654.5
Alabama	-	6	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Arkansas	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
California	E4	26	12	.8	12.4	.6	1.2	9.1	23.6	23.2	47.2	2.0	1.5	49.6
Florida	-	4	4	.7	9.8	.7	1.3	7.8	22.1	33.8	56.3	.4	.9	17.3
Georgia	-	11	9	1.3	16.9	1.1	2.2	14.0	32.8	53.5	88.0	(D)	2.1	38.9
Illinois	-	28	18	6.9	204.4	5.7	11.3	165.7	334.4	331.3	664.9	(D)	9.2	382.6
Indiana	-	45	29	6.6	167.8	5.5	10.5	133.8	318.4	351.5	677.3	14.4	9.6	354.5
Iowa	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Kentucky	E2	5	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Massachusetts	E1	9	5	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Michigan	-	323	204	37.4	925.9	30.7	59.5	714.1	1 769.8	2 029.7	3 811.4	135.9	57.3	1 947.6
Minnesota	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Mississippi	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	39.1
Missouri	E6	9	6	.3	6.8	.2	.4	4.9	12.2	12.8	25.1	1.4	.2	6.1
New York	-	11	7	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Ohio	-	121	88	21.6	596.0	17.6	35.0	467.1	979.4	1 141.3	2 137.0	119.0	32.0	1 174.2
Pennsylvania	-	10	8	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	6.0	225.6
South Carolina	-	4	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Tennessee	-	6	5	1.0	17.0	.8	1.5	11.9	33.1	44.6	78.9	4.4	BB	(D)
Virginia	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
West Virginia	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Wisconsin	-	11	9	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
INDUSTRY 3466, CROWNS AND CLOSURES														
United States	-	64	36	6.7	143.5	5.4	10.6	106.8	372.4	441.7	804.8	21.6	7.9	265.4
California	-	8	4	.4	9.9	.3	.6	7.2	37.4	27.5	64.0	(D)	.7	25.3
Connecticut	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Illinois	-	13	8	1.6	36.4	1.3	2.5	27.4	89.9	95.4	183.2	3.4	1.8	73.2
Indiana	-	5	4	1.2	24.7	.8	1.8	17.1	65.3	75.6	140.5	3.1	EE	(D)
New Jersey	-	3	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	23.1
New York	E5	4	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	9.1
Oklahoma	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	7	5	1.3	29.6	1.1	2.1	22.9	76.1	104.6	180.6	4.3	1.3	53.0
West Virginia	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
INDUSTRY 3469, METAL STAMPINGS, N.E.C.														
United States	-	2 843	1 157	100.4	1 782.7	75.6	146.3	1 154.0	3 414.2	2 986.4	6 437.7	200.1	103.2	2 451.5
Alabama	-	17	5	.7	11.9	.6	1.1	9.4	22.9	24.8	48.2	.5	.9	23.7
Arizona	E2	25	10	.6	9.6	.5	.9	7.0	20.1	18.4	38.3	4.0	.4	9.0
Arkansas	-	4	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
California	E2	429	124	9.7	177.5	7.4	14.6	117.0	329.2	254.6	584.6	17.7	9.3	211.5
Colorado	E1	17	9	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Connecticut	E1	138	56	5.3	92.7	4.2	8.4	63.4	177.9	160.2	340.4	11.1	5.2	117.0
Florida	E1	47	15	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Georgia	-	27	15	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	22.8
Illinois	E1	321	143	11.9	232.9	9.2	18.1	156.6	463.4	460.5	928.9	32.1	14.0	383.2
Indiana	-	74	35	3.0	49.1	2.3	4.3	33.0	101.3	92.0	195.8	5.2	3.4	75.1
Iowa	-	19	7	1.3	22.0	1.0	1.6	13.0	57.5	29.7	87.4	3.0	2.4	68.2
Kansas	E2	14	7	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Kentucky	-	29	18	1.3	20.1	1.0	1.8	13.5	35.5	31.3	67.2	1.8	2.0	38.6
Maryland	E2	16	4	.2	3.9	.2	.3	2.4	7.8	6.3	14.0	.4	CC	(D)
Massachusetts	-	108	57	8.7	163.0	5.4	11.7	81.1	276.5	192.7	465.8	(D)	4.3	97.8
Michigan	E2	141	47	3.0	52.2	2.3	4.5	35.1	99.4	83.9	184.8	5.9	FF	(D)
Minnesota	-	79	38	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Mississippi	-	11	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Missouri	E1	51	19	1.6	28.5	1.2	2.3	16.9	57.0	43.5	101.0	4.9	1.9	39.1
New Hampshire	-	14	6	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	E1	181	71	5.4	95.5	4.1	8.1	61.8	171.4	163.5	336.8	9.5	5.7	128.9
New York	E2	257	95	7.1	119.2	5.5	10.6	79.4	226.2	170.1	401.2	(D)	8.4	206.1
North Carolina	E1	36	17	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Ohio	E1	260	131	10.8	196.3	8.2	15.8	129.6	421.3	360.3	789.6	(D)	FF	(D)
Oklahoma	-	14	7	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	5.8
Oregon	-	16	6	.3	6.0	.3	.5	3.9	14.2	10.2	24.5	.6	.2	5.4
Pennsylvania	-	135	63	5.9	112.7	4.6	8.2	80.4	199.8	203.0	405.6	10.5	4.5	111.1
Rhode Island	E3	41	17	.9	13.4	.7	1.3	8.5	23.5	22.2	45.8	1.3	.8	16.9
South Carolina	E1	14	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	2.4
Tennessee	-	30	12	1.0	13.5	.8	1.4	10.0	28.9	61.4	90.4	(D)	1.8	45.2
Texas	E2	77	27	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.3	28.8
Utah	-	10	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	E2	14	3	.3	3.0	.2	.4	2.0	6.9	14.2	21.1	.2	BB	(D)
Washington	E1	21	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
West Virginia	-	10	5	.5	8.2	.3	.7	4.8	13.7	26.9	39.8	1.0	.8	13.1
Wisconsin	-	109	58	7.4	132.2	5.1	9.8	78.3	227.5	192.0	428.4	14.3	9.0	194.3

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	E ¹	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3471, PLATING AND POLISHING														
United States	E1	3 450	898	61.9	919.0	49.7	98.1	631.9	1 693.9	1 038.4	2 731.4	109.2	61.2	1 181.8
Alabama	-	29	7	.7	10.1	.5	1.0	6.5	21.3	8.1	28.1	1.0	.4	6.4
Arizona	-	28	8	.4	6.1	.4	.7	4.5	12.6	10.0	22.5	1.0	.4	7.2
California	E1	617	176	11.7	167.5	9.3	19.0	114.4	300.2	156.3	455.7	23.4	10.2	197.6
Colorado	E1	29	6	.3	3.9	.2	.5	2.7	6.3	3.0	9.3	.3	.3	3.1
Connecticut	-	103	37	2.5	41.9	2.0	4.0	28.6	83.6	60.4	143.8	6.9	EE	(D)
Florida	E1	75	18	1.1	15.0	.9	1.7	10.2	23.4	13.7	37.1	1.7	1.1	17.6
Georgia	E3	28	5	.4	5.4	.3	.6	3.7	10.4	4.9	15.4	.4	BB	(D)
Illinois	E1	288	81	5.9	88.9	4.6	9.1	57.9	159.5	103.6	263.4	9.3	6.0	125.3
Indiana	E1	101	35	2.2	31.1	1.8	3.6	21.3	50.0	32.6	84.0	3.6	2.1	36.9
Kansas	-	18	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.1
Kentucky	E2	26	6	.3	5.1	.3	.6	3.5	9.5	5.8	15.3	.6	.6	10.0
Louisiana	E1	13	3	.3	3.2	.2	.4	2.1	6.4	3.6	10.0	.5	(NA)	(NA)
Maryland	E1	31	4	.3	3.3	.2	.4	2.3	6.5	3.3	9.7	.3	AA	(D)
Massachusetts	E1	124	35	2.5	36.4	2.0	3.9	25.4	70.6	50.6	121.0	5.5	2.1	37.5
Michigan	-	275	74	5.4	89.3	4.3	8.1	60.6	174.1	135.4	308.9	8.9	6.9	162.3
Minnesota	E1	65	23	1.5	26.0	1.2	2.3	17.7	45.5	19.7	65.3	2.5	1.3	25.2
Missouri	-	69	10	1.5	21.3	1.2	2.5	16.2	44.8	19.5	63.7	1.8	.9	16.7
Nebraska	E1	6	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E1	149	43	2.3	34.0	1.8	3.6	22.3	67.9	89.9	158.1	3.4	1.9	42.7
New York	E1	267	79	4.9	65.5	4.0	7.8	46.5	127.6	64.5	191.9	5.5	5.8	95.0
North Carolina	-	48	13	.8	12.2	.7	1.3	8.8	24.1	15.0	39.7	1.4	1.0	17.7
Ohio	E1	276	62	4.8	74.4	3.9	7.8	53.0	142.9	79.7	223.1	7.2	5.3	106.8
Oklahoma	E1	42	6	.5	7.7	.4	.8	5.1	10.1	5.7	16.2	7.5	.3	5.6
Oregon	-	24	9	.4	6.1	.4	.7	4.5	11.0	5.7	16.7	.9	.6	12.5
Pennsylvania	E1	137	34	1.9	29.9	1.5	2.9	19.6	50.9	28.4	79.3	3.6	2.1	41.1
Rhode Island	E1	117	27	2.0	23.7	1.7	3.2	17.3	38.3	22.1	60.4	1.9	2.2	31.9
Tennessee	-	55	14	1.4	17.8	1.2	2.3	13.1	32.7	20.2	52.8	1.2	1.6	24.2
Texas	-	154	31	2.3	38.3	1.9	3.7	26.4	67.7	32.4	99.3	4.0	1.6	29.2
Virginia	-	20	4	.3	4.2	.2	.5	3.0	7.1	2.8	9.9	.5	.3	4.6
Washington	E2	32	8	.6	11.2	.5	1.0	7.3	19.6	8.3	28.0	.9	.6	14.1
Wisconsin	-	85	18	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.5	22.8
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES														
United States	-	1 620	507	35.0	599.1	27.5	54.1	403.7	1 202.6	1 195.9	2 393.4	91.0	32.3	781.1
Alabama	-	7	3	.2	4.3	.2	.4	2.6	7.9	6.3	14.2	.7	.4	8.7
California	-	252	93	5.6	94.1	4.4	8.6	62.7	177.8	167.3	348.3	10.5	3.6	75.4
Colorado	-	18	5	.2	3.4	.2	.4	2.3	6.3	4.9	11.2	.4	.2	5.0
Connecticut	-	41	12	.8	12.9	.6	1.3	8.6	29.4	12.2	41.7	3.2	CC	(D)
Florida	-	47	7	.6	8.9	.4	.9	6.0	16.7	15.5	32.4	1.9	.4	8.6
Georgia	-	18	5	.3	4.2	.2	.4	2.8	8.6	10.0	18.6	2.3	.2	4.6
Illinois	-	108	37	2.7	46.8	2.1	4.0	31.7	101.0	98.2	199.6	6.0	FF	(D)
Indiana	-	38	16	1.5	30.3	1.1	2.1	18.0	65.5	64.4	130.1	4.2	1.7	65.5
Kentucky	-	10	3	.2	2.1	.1	.2	1.4	4.6	2.1	6.8	.2	AA	(D)
Louisiana	-	22	11	.6	12.7	.5	1.0	9.3	26.3	16.6	43.1	1.3	.4	11.0
Maryland	-	20	5	.4	8.7	.4	.8	6.2	17.7	25.3	43.0	.6	.3	6.4
Massachusetts	-	90	31	1.7	24.4	1.3	2.5	15.4	38.9	23.1	62.1	2.1	1.4	24.5
Michigan	-	129	34	2.4	36.6	1.9	3.5	22.7	65.4	44.9	110.3	3.4	2.9	58.9
Minnesota	-	37	16	.8	11.9	.6	1.2	8.4	22.7	15.8	38.4	1.3	.8	13.3
Missouri	-	35	10	.5	8.7	.4	.7	5.3	14.0	10.1	24.6	2.1	BB	(D)
New Jersey	-	76	23	1.4	26.2	1.1	2.4	18.1	44.8	38.2	82.6	3.7	1.4	29.5
New York	E1	119	23	1.7	22.4	1.4	2.8	16.6	43.0	23.3	66.3	3.4	1.5	23.1
North Carolina	-	11	4	.4	6.3	.3	.7	4.5	15.9	8.1	24.2	1.8	.4	8.5
Ohio	-	104	39	3.1	63.6	2.4	4.5	43.5	129.8	313.6	427.6	11.1	3.0	106.0
Oklahoma	-	23	10	.6	9.2	.5	1.0	6.9	25.0	13.9	39.0	2.5	.3	7.4
Pennsylvania	-	91	29	2.0	37.3	1.5	3.0	24.6	72.4	94.8	167.3	5.2	2.0	53.7
Rhode Island	-	46	7	.5	7.6	.4	.9	4.8	19.5	21.5	41.7	1.0	.7	14.9
Texas	-	117	46	3.9	69.0	3.2	6.4	48.2	153.6	94.1	252.4	12.2	3.2	82.4
Washington	-	28	4	.3	5.1	.2	.4	3.7	10.6	6.6	17.1	.3	(NA)	(NA)
Wisconsin	-	34	12	1.3	20.1	1.0	1.8	12.0	31.0	27.6	59.1	(D)	EE	(D)

Note: For qualifications of data, see footnotes on table 1e.

¹Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

²Includes establishments with payroll at any time during year.

³Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

⁴Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, data for inventories and value added by manufacture are not comparable to prior-year data.

Table 3a. Summary Statistics for the Industry: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Screw machine products (SIC 3451)	Bolts, nuts, rivets, and washers (SIC 3452)	Iron and steel forgings (SIC 3462)	Nonferrous forgings (SIC 3463)	Automotive stampings (SIC 3465)	Crowns and closures (SIC 3466)	Metal stampings, n.e.c. (SIC 3469)	Plating and polishing (SIC 3471)	Metal coating and allied services (SIC 3479)
Companies ¹ ----- number--	1 744	781	337	59	566	48	2 718	3 367	1 524
All establishments ² ----- do--	1 787	903	381	64	668	64	2 843	3 450	1 620
With 1 to 19 employees ----- do--	1 143	453	160	18	234	28	1 686	2 552	1 113
With 20 to 99 employees ----- do--	588	320	130	23	300	13	960	829	459
With 100 employees or more ----- do--	56	130	91	23	134	23	197	69	48
All employees:									
Average for year ----- 1,000--	41.8	52.2	30.9	7.9	90.5	6.7	100.4	61.9	35.0
Annual payroll ³ ----- mil. dol--	718.9	1 008.1	692.5	200.7	2 292.6	143.5	1 782.7	919.0	599.1
Production workers:									
Average for year ----- 1,000--	33.7	37.2	22.5	5.7	74.5	5.4	75.6	49.7	27.5
March ----- do--	35.5	39.5	26.1	6.2	74.7	5.5	78.5	50.5	28.1
May ----- do--	34.2	38.5	23.7	5.9	79.9	5.4	76.3	50.1	28.0
August ----- do--	33.4	36.5	21.3	5.6	73.9	5.4	74.5	50.0	27.6
November ----- do--	31.7	34.4	18.9	5.4	69.4	5.1	73.3	48.3	26.4
Hours ----- millions--	65.2	69.1	40.9	10.6	145.2	10.6	146.3	98.1	54.1
January to March ----- do--	17.1	18.5	12.7	2.9	34.0	2.8	37.7	24.0	13.3
April to June ----- do--	16.9	18.0	11.2	2.8	41.0	2.7	37.4	24.8	14.0
July to September ----- do--	15.6	16.7	8.8	2.5	36.1	2.6	35.0	24.4	13.5
October to December ----- do--	15.4	16.0	8.3	2.5	34.1	2.4	35.7	24.5	13.1
Wages ----- mil. dol--	503.2	644.6	464.1	128.7	1 792.4	106.8	1 154.0	631.9	403.7
Value added by manufacture ⁴ ----- do--	1 328.0	1 981.2	1 352.6	462.1	4 114.4	372.4	3 414.2	1 693.9	1 202.6
Cost of materials, etc. ⁵ ----- do--	831.6	1 588.1	1 524.6	569.3	4 621.6	441.7	2 986.4	1 038.4	1 195.9
Materials, parts, containers, etc., consumed ----- do--	671.4	1 262.2	1 245.1	477.4	4 276.1	419.3	2 572.6	822.7	1 045.2
Resales ----- do--	14.1	110.3	36.5	6.2	38.2	3.8	95.1	16.6	18.8
Fuels consumed ⁶ ----- do--	11.5	40.5	115.6	23.0	62.2	9.1	51.6	63.2	60.5
Purchased electric energy ⁷ ----- do--	26.1	54.7	62.6	17.7	127.2	8.9	76.8	80.4	41.5
Contract work ----- do--	108.4	120.3	64.8	45.0	117.9	.6	190.0	55.5	29.9
Value of shipments, including resales ----- do--	2 173.1	3 661.3	2 952.5	1 093.8	8 777.4	804.8	6 437.7	2 731.4	2 393.4
Value of resales ----- do--	21.7	142.4	46.3	6.7	44.4	4.4	126.4	21.7	23.0
Manufacturers' inventories (see tables 3b and 3c)									
Capital expenditures for plant and equipment ⁸ ----- do--	96.5	142.2	181.0	125.0	498.4	24.0	226.8	122.7	103.3
New capital expenditures ----- do--	77.2	109.8	158.4	100.3	465.0	21.6	200.1	109.2	91.0
New buildings and other structures ----- do--	16.6	14.0	21.7	11.1	23.7	1.8	29.0	21.7	18.3
New machinery and equipment ----- do--	60.7	95.8	136.7	89.2	441.2	19.8	171.2	87.5	72.8
Used capital expenditures ----- do--	19.4	32.5	22.6	24.7	33.5	2.4	26.7	13.5	12.3
Primary product specialization ratio ⁹ ----- percent--	96	93	89	84	92	92	88	(¹¹)	(¹¹)
Coverage ratio ¹⁰ ----- do--	94	95	81	73	88	92	88	(¹¹)	(¹¹)

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during year.

³Data on supplemental labor costs are not included in annual payroll, but are shown in table 3d.

⁴Value added by manufacture is computed using inventory data reported on a cost or market basis prior to any adjustment to LIFO cost. See table 3b, footnote 1 for further explanation.

⁵Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3d.

⁶Data on purchased fuels by type were not collected for 1982. See MC82-S-4, Fuels and Electric Energy Consumed, for 1981 data on purchased fuels by type.

⁷Data on quantity of electric energy used for heat and power are included in table 3d.

⁸Data on capital expenditures for new machinery and equipment by type, depreciable assets, retirements, rental payments, and depreciation are included in table 3d.

⁹Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in industry.

¹⁰Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

¹¹Relationships are not meaningful because of predominance of miscellaneous receipts, particularly receipts for contract and commission work on materials owned by others.

Table 3b. Value of Inventories for the Industry: End of 1981 and 1982

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Screw machine products (SIC 3451)		Bolts, nuts, rivets, and washers (SIC 3452)		Iron and steel forgings (SIC 3462)		Nonferrous forgings (SIC 3463)		Automotive stampings (SIC 3465)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total inventories ¹ -----	335.5	297.0	1 086.5	945.0	782.5	620.8	410.3	302.6	947.6	804.7
Detail by method of valuation:										
Subject to LIFO costing ² -----	77.1	68.2	407.0	352.0	485.9	389.8	226.7	162.7	183.5	154.4
LIFO reserve -----	24.4	24.1	147.6	123.2	248.5	198.2	108.0	81.8	51.5	48.9
LIFO value -----	52.7	44.1	259.3	228.8	237.4	191.6	118.2	80.9	132.1	105.5
Not subject to LIFO costing -----	140.2	120.2	461.8	447.1	229.3	183.1	178.3	135.1	688.2	582.7
Valuation method not reported ³ -----	115.0	105.9	216.8	144.0	62.8	45.3	3.3	2.9	73.4	65.5
Amount subject to LIFO reported without associated reserve and value ⁴ -----	3.2	2.7	.9	1.9	4.4	2.6	2.5	1.9	2.5	2.1
Detail by stage of fabrication:										
Finished goods -----	101.2	98.1	471.4	428.4	57.1	49.3	36.0	32.9	99.8	90.8
Work in process -----	107.0	96.6	284.3	235.2	351.8	284.2	236.0	175.9	427.4	394.9
Materials and supplies -----	127.2	102.3	330.8	281.4	373.5	287.3	138.2	93.8	420.4	319.0

See footnotes at end of table.

Table 3b. Value of Inventories for the Industry: End of 1981 and 1982—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Crowns and closures (SIC 3466)		Metal stampings, n.e.c. (SIC 3469)		Plating and polishing (SIC 3471)		Metal coating and allied services (SIC 3479)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total Inventories¹	134.1	140.7	1 104.1	1 014.7	219.7	225.5	295.7	292.1
Detail by method of valuation:								
Subject to LIFO costing ²	68.9	75.2	408.1	402.8	18.1	18.1	66.0	72.2
LIFO reserve	27.7	32.0	146.9	151.4	5.3	5.0	19.4	26.8
LIFO value	41.2	43.2	261.2	251.4	12.9	13.2	46.6	45.4
Not subject to LIFO costing	59.2	60.0	455.5	388.5	84.7	100.6	100.7	120.6
Valuation method not reported ³	6.1	5.5	234.8	217.4	116.2	106.2	112.7	86.3
Amount subject to LIFO reported without associated reserve and value ⁴	-	-	5.8	6.1	.6	.6	16.4	13.0
Detail by stage of fabrication:								
Finished goods	48.7	52.5	313.6	300.5	41.2	41.8	54.8	69.5
Work in process	30.1	35.7	322.7	298.2	46.3	46.7	64.0	54.5
Materials and supplies	55.3	52.5	467.8	416.0	132.2	137.0	176.8	168.2

¹Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (LIFO, FIFO, market, to name a few). In 1982, all respondents were requested to report inventories at cost or market. LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve. For further explanation, see inventories in appendixes.

²Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

³Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

⁴Includes data reported by respondents who indicated their inventories were subject to LIFO cost, but did not provide associated LIFO reserve and value figures.

Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Screw machine products (SIC 3451)		Bolts, nuts, rivets, and washers (SIC 3452)		Iron and steel forgings (SIC 3462)		Nonferrous forgings (SIC 3463)		Automotive stampings (SIC 3465)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total Inventories	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)
Last-In, First-Out (LIFO) methods	22.9	(X)	37.2	(X)	62.8	(X)	53.8	(X)	19.2	(X)
Non-LIFO methods	40.5	(X)	47.3	(X)	29.5	(X)	44.6	(X)	72.4	(X)
Cost basis:										
First-In, First-Out (FIFO)	14.9	2.1	13.0	1.5	14.2	.2	1.3	.2	49.3	1.8
Average cost	2.7	1.0	3.2	.6	2.6	(Z)	3.9	.8	5.5	.8
Specific or actual cost	14.9	2.8	6.0	2.1	6.8	.1	24.5	.6	4.4	.9
Standard cost	4.1	1.0	15.4	1.8	3.8	(Z)	10.7	.3	10.8	1.1
Other	1.4	.4	9.2	1.4	1.1	(Z)	4.2	.1	(Z)	(Z)
Market basis:										
Market lower than cost	1.2	.1	.4	.2	1.1	(Z)	(Z)	(Z)	.3	(Z)
Market always used	1.2	.6	(Z)	(Z)	.1	(Z)	(Z)	(Z)	2.4	.3
Valuation method not reported	35.6	(X)	15.2	(X)	7.3	(X)	1.0	(X)	8.1	(X)
Amount subject to LIFO reported without associated reserve and value .....	.9	(X)	.2	(X)	.4	(X)	.6	(X)	.3	(X)

Item	Crowns and closures (SIC 3466)		Metal stampings, n.e.c. (SIC 3469)		Plating and polishing (SIC 3471)		Metal coating and allied services (SIC 3479)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total Inventories	100.0	(X)	100.0	(X)	(S)	(X)	100.0	(X)
Last-In, First-Out (LIFO) methods	53.4	(X)	39.7	(X)	(S)	(X)	24.7	(X)
Non-LIFO methods	42.7	(X)	38.3	(X)	(S)	(X)	41.3	(X)
Cost basis:								
First-In, First-Out (FIFO)	8.0	1.1	17.0	1.6	(S)	(S)	20.4	2.5
Average cost	3.0	.4	3.3	.8	(S)	(S)	9.4	1.2
Specific or actual cost	7.8	2.5	7.8	1.1	(S)	(S)	7.5	1.6
Standard cost	21.9	2.6	6.8	.8	(S)	(S)	2.7	.3
Other	1.9	.3	1.0	.1	(S)	(S)	1.0	.6
Market basis:								
Market lower than cost	(Z)	(Z)	.1	(Z)	(S)	(S)	(S)	(S)
Market always used	(Z)	(Z)	2.3	1.1	(S)	(S)	(Z)	(Z)
Valuation method not reported	3.9	(X)	21.4	(X)	(S)	(X)	29.5	(X)
Amount subject to LIFO reported without associated reserve and value	(Z)	(X)	.6	(X)	(S)	(X)	4.4	(X)

Note: The percentages shown for the LIFO and non-LIFO totals and the categories "valuation method not reported" and "amount subject to LIFO reported..." are based on the census universe estimates included in table 3b. The percentages shown for the specific non-LIFO methods of valuation (e.g., FIFO, etc.) are based on a representative sample of establishments included in the annual survey of manufactures (ASM) panel for 1982 (see appendixes for description of ASM). The absolute standard error of each of the ASM estimates is shown above.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Screw machine products (SIC 3451)		Bolts, nuts, rivets, and washers (SIC 3452)		Iron and steel forgings (SIC 3462)		Nonferrous forgings (SIC 3463)		Automotive stampings (SIC 3465)	
	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Supplemental labor costs:										
Total	131.8	3	261.5	2	222.6	1	64.1	1	789.0	2
Legal costs	61.7	3	96.7	2	74.5	1	19.4	2	220.0	1
Voluntary costs	70.1	4	164.8	3	148.1	1	44.7	2	569.1	2
Purchased services:										
Cost of purchased services for the repair of—										
Buildings and other structures	3.8	16	5.1	12	6.1	1	2.0	7	10.5	21
Response coverage ratio (percent) ²	64.3	(X)	71.3	(X)	85.8	(X)	88.0	(X)	78.2	(X)
Machinery	14.3	13	23.0	9	39.7	2	15.2	3	56.6	5
Response coverage ratio (percent) ²	67.9	(X)	76.8	(X)	86.6	(X)	92.9	(X)	80.6	(X)
Cost of purchased communication services	4.7	14	13.7	10	6.7	2	2.0	12	8.9	9
Response coverage ratio (percent) ²	67.4	(X)	73.1	(X)	88.3	(X)	90.9	(X)	85.1	(X)
Electric energy used for heat and power:										
Purchased:										
Quantity (million kWh)	377.7	3	853.1	1	1 017.4	1	289.1	1	2 427.5	1
Cost	26.1	(X)	54.7	(X)	62.6	(X)	17.7	(X)	127.2	(X)
Generated less sold (million kWh)	(S)	(S)	—	—	(Z)	1	2.3	1	—	—
Gross book value of depreciable assets:										
Total:										
Beginning of year	1 013.9	4	1 620.3	4	1 467.8	1	331.6	2	4 796.3	3
New capital expenditures	67.5	23	112.8	10	146.8	2	77.3	2	455.8	3
Used capital expenditures	18.9	19	28.3	17	21.0	2	24.8	1	33.3	20
Retirements	45.2	17	74.0	16	39.8	1	4.5	6	283.9	7
End of year	1 055.0	4	1 687.4	4	1 595.8	1	429.1	1	5 001.5	3
Buildings and other structures:										
Beginning of year	170.1	6	361.5	5	273.8	1	62.2	5	992.1	4
New capital expenditures	21.5	64	12.8	11	20.0	1	10.2	2	24.0	14
Used capital expenditures	2.9	57	9.7	42	3.2	1	4.1	3	7.5	71
Retirements	6.4	21	12.3	39	4.7	2	2	41	41.8	17
End of year	188.1	9	371.7	6	292.3	1	76.2	4	981.8	4
Machinery and equipment:										
Beginning of year	843.8	4	1 258.8	4	1 194.0	1	269.5	1	3 804.1	3
New capital expenditures	46.0	13	100.1	11	126.8	2	67.0	2	431.8	3
Automobiles, trucks, etc., for highway use	2.7	36	5.9	28	1.5	1	.9	6	11.7	9
Computers and peripheral data processing equipment	1.3	23	4.7	15	2.9	2	.5	27	5.4	20
All other	25.2	15	75.5	11	114.3	2	65.0	2	397.0	2
New machinery and equipment, n.s.k. ³	16.8	(S)	14.0	(S)	8.1	(S)	.6	(S)	17.8	(S)
Used capital expenditures	16.0	19	18.6	12	17.8	2	20.7	1	25.8	10
Retirements	38.8	18	61.7	16	36.2	1	4.3	6	242.1	6
End of year	866.9	4	1 315.7	4	1 303.5	1	352.9	1	4 019.7	3
Rental payments:										
Total	27.8	11	40.2	17	12.5	3	3.2	9	27.2	25
Buildings and other structures	15.4	11	16.6	19	2.4	7	1.6	18	8.3	28
Machinery and equipment	12.4	23	23.6	21	10.1	2	1.6	3	18.9	26
Depreciation charges during 1982:										
Total	88.5	8	124.6	5	101.7	1	25.1	4	332.3	6
Buildings and other structures	9.7	10	16.1	8	11.8	1	2.9	9	30.1	8
Machinery and equipment	78.8	8	108.5	5	90.0	2	22.3	4	302.2	6

Item	Crowns and closures (SIC 3466)		Metal stampings, n.e.c. (SIC 3469)		Plating and polishing (SIC 3471)		Metal coating and allied services (SIC 3479)	
	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Supplemental labor costs:								
Total	43.3	3	380.2	2	170.2	6	122.6	6
Legal costs	16.1	3	166.9	2	96.1	9	55.0	5
Voluntary costs	27.1	3	213.3	3	74.1	5	67.7	8
Purchased services:								
Cost of purchased services for the repair of—								
Buildings and other structures .....	.8	10	141.0	1	26.5	52	2.4	35
Response coverage ratio (percent) ²	82.9	(X)	71.0	(X)	42.7	(X)	50.7	(X)
Machinery	3.4	3	271.8	2	153.6	83	15.7	22
Response coverage ratio (percent) ²	84.9	(X)	78.9	(X)	56.9	(X)	57.0	(X)
Cost of purchased communication services	1.6	21	146.5	1	183.5	90	3.8	20
Response coverage ratio (percent) ²	87.9	(X)	72.7	(X)	53.4	(X)	56.9	(X)
Electric energy used for heat and power:								
Purchased:								
Quantity (million kWh)	175.2	2	1 257.2	2	1 273.0	4	703.4	3
Cost	8.9	(X)	76.8	(X)	80.4	(X)	41.5	(X)
Generated less sold (million kWh)	—	—	—	—	8.6	84	—	—
Gross book value of depreciable assets:								
Total:								
Beginning of year	222.7	2	2 272.3	4	1 077.3	14	899.3	8
New capital expenditures	21.8	9	177.8	11	80.7	19	46.6	16
Used capital expenditures	2.5	17	22.0	21	13.4	55	7.1	57
Retirements	14.7	27	85.3	28	86.1	45	22.4	23
End of year	232.3	2	2 386.8	4	1 085.3	12	930.6	8

See footnotes at end of table.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Crowns and closures (SIC 3466)		Metal stampings, n.e.c. (SIC 3469)		Plating and polishing (SIC 3471)		Metal coating and allied services (SIC 3479)	
	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Gross book value of depreciable assets—Con.								
Buildings and other structures:								
Beginning of year	41.7	2	540.6	6	262.8	15	182.2	12
New capital expenditures	1.9	9	22.3	14	16.3	35	6.3	8
Used capital expenditures .....	.1	1	4.8	19	7.5	92	.2	74
Retirements	2.7	1	19.8	34	10.0	44	4.2	31
End of year	40.9	2	547.8	6	276.5	16	184.5	11
Machinery and equipment:								
Beginning of year	181.0	3	1 731.7	5	814.5	14	717.1	9
New capital expenditures	20.0	10	155.6	12	64.4	17	40.3	18
Automobiles, trucks, etc., for highway use	—	1	5.6	22	4.4	23	.7	33
Computers and peripheral data processing equipment .....	.1	28	7.0	17	.8	35	1.0	31
All other	18.5	11	104.4	10	35.6	23	27.0	20
New machinery and equipment, n.s.k. ³	1.4	(S)	38.7	(S)	23.7	(S)	11.6	(S)
Used capital expenditures	2.4	17	17.2	26	6.0	44	6.9	59
Retirements	12.0	33	65.5	26	76.1	49	18.2	22
End of year	191.5	2	1 839.0	5	808.8	11	746.0	9
Rental payments:								
Total	2.3	12	62.0	15	34.8	14	23.6	27
Buildings and other structures	1.3	10	40.8	19	25.4	15	17.5	37
Machinery and equipment	1.0	18	21.2	26	9.4	33	6.2	21
Depreciation charges during 1982:								
Total	15.4	5	227.4	17	105.1	13	65.9	11
Buildings and other structures	1.3	3	37.1	22	14.3	15	7.7	14
Machinery and equipment	14.1	5	190.3	16	90.8	13	58.2	12

Note: Data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used expenditures are also shown in table 3a. Data in table 3a are census universe totals and may differ from annual survey of manufactures (ASM) sample estimates shown in this table. Data in this table represent best estimates of year-to-year change as measured by the continuing ASM sample. However, they are subject to sampling error and, hence, as estimates of level, are not as reliable as universe figures shown in table 3a.

¹For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

²Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to weighted total employment for all sample establishments classified in industry. (See appendixes for explanation of sample weight.)

³Represents total machinery and equipment expenditures for establishments that did not break down their expenditures by specific type.

Table 4. Industry Statistics by Employment Size of Establishment: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E ¹	All estab- lish- ments (no.)	All employees		Production workers			Value added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	End-of- year inventor- ies (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3451, SCREW MACHINE PRODUCTS												
Total	E2	1 787	41.8	718.9	33.7	65.2	503.2	1 328.0	831.6	2 173.1	77.2	297.0
Establishments with an average of—												
1 to 4 employees	E7	354	.8	10.9	.7	1.3	9.6	25.2	15.0	41.2	1.0	5.0
5 to 9 employees	E3	352	2.4	37.3	2.0	4.1	28.0	73.1	41.8	115.2	3.4	12.6
10 to 19 employees	E2	437	6.1	96.2	4.9	9.0	66.8	174.8	112.4	288.8	8.4	29.6
20 to 49 employees	E2	435	13.1	228.2	10.6	20.7	155.6	417.9	257.9	679.7	21.1	81.6
50 to 99 employees	E1	153	10.6	191.5	8.6	16.2	134.8	358.9	231.2	594.3	25.6	79.1
100 to 249 employees	E1	53	7.9	138.0	6.3	12.7	98.5	246.7	155.5	403.8	16.8	75.5
250 to 499 employees	—	3	.9	16.8	.7	1.2	9.9	31.3	17.7	50.2	.9	13.6
Covered by administrative records ²	E9	386	1.3	14.1	1.1	2.3	11.6	33.0	20.0	53.6	1.5	7.0
INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS												
Total	E1	903	52.2	1 008.1	37.2	69.1	644.6	1 981.2	1 588.1	3 661.3	109.8	945.0
Establishments with an average of—												
1 to 4 employees	E9	160	.3	5.2	.2	.5	3.8	12.5	9.1	22.2	.7	5.9
5 to 9 employees	E4	126	.9	13.2	.6	1.2	8.9	34.0	30.9	63.8	2.0	14.2
10 to 19 employees	E3	167	2.3	38.3	1.7	3.3	24.7	74.0	65.0	140.9	4.0	26.4
20 to 49 employees	E1	213	6.8	125.7	5.0	9.8	80.6	258.7	237.3	503.8	16.1	88.9
50 to 99 employees	E1	107	7.5	139.6	5.5	10.6	92.3	295.1	319.8	628.9	16.0	128.6
100 to 249 employees	—	85	12.8	247.3	9.0	16.7	156.7	520.5	452.0	986.7	28.3	266.9
250 to 499 employees	—	32	10.4	208.8	7.0	13.0	125.2	421.9	250.3	696.8	20.8	209.6
500 to 999 employees	—	9	6.1	123.3	4.5	7.9	80.1	210.7	111.8	338.0	14.8	114.2
1,000 to 2,499 employees	—	4	5.0	106.6	3.6	6.2	72.4	153.8	111.9	280.1	7.3	90.3
Covered by administrative records ²	E9	224	1.2	15.5	.9	1.7	10.5	35.3	26.2	63.1	1.9	16.5

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E ¹	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3462, IRON AND STEEL FORGINGS												
Total.....	-	381	30.9	692.5	22.5	40.9	464.1	1 352.6	1 524.6	2 952.5	158.4	620.8
Establishments with an average of—												
1 to 4 employees.....	E8	53	.1	1.4	.1	.2	1.2	3.4	3.7	7.4	.3	1.5
5 to 9 employees.....	E7	40	.3	5.0	.2	.4	3.5	10.3	11.1	21.9	.7	4.0
10 to 19 employees.....	E5	67	.9	15.4	.7	1.3	10.4	30.6	38.9	70.3	2.1	13.3
20 to 49 employees.....	E1	73	2.4	49.4	1.9	3.6	32.5	106.1	126.9	237.5	8.9	36.5
50 to 99 employees.....	E1	57	4.0	83.1	3.0	5.6	54.8	187.3	216.7	412.5	24.5	67.3
100 to 249 employees.....	-	68	10.7	235.2	7.8	14.2	159.5	455.0	549.5	1 022.2	54.3	190.5
250 to 499 employees.....	-	18	6.0	135.3	4.5	7.8	89.7	249.3	282.3	543.7	31.4	113.8
500 to 999 employees.....	-	4	6.3	167.7	4.3	7.8	112.4	310.6	295.5	637.0	36.2	194.0
2,500 employees or more.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	105	.9	12.2	.7	1.4	8.9	26.2	29.3	56.4	2.4	12.5
INDUSTRY 3463, NONFERROUS FORGINGS												
Total.....	-	64	7.9	200.7	5.7	10.6	128.7	462.1	569.3	1 093.8	100.3	302.6
Establishments with an average of—												
1 to 4 employees.....	E5	4	.1	.8	(Z)	.1	.6	1.9	2.1	4.1	.1	1.1
5 to 9 employees.....	-	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees.....	E3	8	.1	1.9	.1	.2	1.2	4.8	5.8	11.1	.3	3.1
20 to 49 employees.....	-	19	.6	12.3	.5	.9	8.0	29.1	37.8	68.3	2.5	10.0
50 to 99 employees.....	E1	4	.3	7.1	.2	.4	4.4	13.6	12.3	25.6	.9	5.3
100 to 249 employees.....	-	16	2.3	55.3	1.6	3.1	30.3	139.0	151.2	296.9	40.0	79.6
250 to 499 employees.....	-	4	1.6	45.3	1.2	2.1	30.7	111.6	96.2	211.7	10.6	53.7
500 to 999 employees.....	-	2	2.9	78.0	2.2	3.9	53.5	162.2	263.9	476.2	46.0	149.8
1,000 to 2,499 employees.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	9	.1	1.0	.1	.1	.7	1.9	2.6	4.6	.2	1.5
INDUSTRY 3465, AUTOMOTIVE STAMPINGS												
Total.....	-	668	90.5	2 292.6	74.5	145.2	1 792.4	4 114.4	4 621.6	8 777.4	465.0	804.7
Establishments with an average of—												
1 to 4 employees.....	E8	62	.1	2.2	.1	.2	1.9	4.4	4.5	9.0	.7	.9
5 to 9 employees.....	E8	64	.4	7.9	.4	.7	6.0	15.6	15.2	31.1	1.8	3.1
10 to 19 employees.....	E5	108	1.5	26.5	1.2	2.2	18.4	52.4	52.9	105.5	5.6	10.0
20 to 49 employees.....	E1	202	6.4	120.8	4.9	9.4	77.3	265.3	323.5	590.3	13.9	68.3
50 to 99 employees.....	E1	98	6.8	132.2	5.1	10.0	85.3	248.0	304.2	557.7	18.4	65.3
100 to 249 employees.....	-	81	12.2	216.0	9.7	18.5	152.0	437.9	584.6	1 027.9	23.5	138.1
250 to 499 employees.....	-	24	8.5	172.8	7.1	13.7	132.3	291.6	379.2	684.3	19.5	83.4
500 to 999 employees.....	-	9	6.8	160.6	5.5	11.6	129.2	354.5	414.4	772.9	67.9	87.3
1,000 to 2,499 employees.....	-	11	22.0	689.0	18.1	36.1	552.4	1 027.6	1 104.9	2 139.6	129.3	150.2
2,500 employees or more.....	-	9	25.9	764.5	22.4	42.8	637.6	1 417.0	1 438.2	2 859.1	184.3	198.2
Covered by administrative records ²	E9	156	1.5	22.6	1.2	2.4	17.9	40.7	42.6	83.9	5.5	7.9
INDUSTRY 3466, CROWNS AND CLOSURES												
Total.....	-	64	6.7	143.5	5.4	10.6	106.8	372.4	441.7	804.8	21.6	140.7
Establishments with an average of—												
1 to 4 employees.....	E9	10	(Z)	.3	(Z)	(Z)	.2	.6	.9	1.5	(Z)	.3
5 to 9 employees.....	E9	6	(Z)	.6	(Z)	.1	.5	1.3	2.0	3.3	.1	.6
10 to 19 employees.....	E4	12	.2	2.3	.1	.3	1.6	7.3	7.0	14.7	.2	2.8
20 to 49 employees.....	E2	6	.2	2.9	.2	.3	1.8	6.0	6.6	12.9	.3	2.5
50 to 99 employees.....	-	7	.5	9.7	.4	.9	6.8	28.6	42.4	69.8	.9	10.8
100 to 249 employees.....	-	17	3.3	71.2	2.6	5.3	50.6	176.1	211.8	366.2	13.8	62.0
250 to 499 employees.....	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees.....	-	4	2.4	57.5	1.9	3.8	45.3	152.4	171.1	319.3	6.3	61.7
Covered by administrative records ²	E9	24	.2	2.6	.2	.3	1.9	5.5	8.0	13.7	.4	2.4
INDUSTRY 3469, METAL STAMPINGS, N.E.C.												
Total.....	E1	2 843	100.4	1 782.7	75.6	146.3	1 154.0	3 414.2	2 986.4	6 437.7	200.1	1 014.7
Establishments with an average of—												
1 to 4 employees.....	E9	639	1.3	17.8	1.0	2.1	14.4	37.5	38.4	76.6	3.0	12.1
5 to 9 employees.....	E6	465	3.2	48.6	2.6	5.1	34.6	94.3	90.8	186.1	5.2	24.4
10 to 19 employees.....	E3	582	8.1	129.4	6.3	12.1	87.1	242.3	206.5	451.9	13.7	53.3
20 to 49 employees.....	E2	664	20.8	373.8	16.2	31.3	245.4	688.6	578.4	1 275.2	37.1	159.8
50 to 99 employees.....	E1	296	20.2	352.4	15.6	30.4	229.5	665.6	578.1	1 243.9	44.8	154.1
100 to 249 employees.....	-	150	22.3	396.5	17.1	33.1	269.3	770.8	742.8	1 519.7	46.6	236.6
250 to 499 employees.....	-	38	12.7	229.5	9.5	18.2	144.9	470.3	361.0	834.5	21.3	168.6
500 to 999 employees.....	-	5	3.1	54.9	2.2	3.8	32.6	133.0	88.1	228.9	8.4	54.0
1,000 to 2,499 employees.....	-	3	8.7	179.8	5.2	10.2	96.3	312.0	302.2	620.9	20.1	151.9
2,500 employees or more.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	892	4.4	53.9	3.5	6.9	39.3	104.7	107.4	214.3	6.1	33.5
INDUSTRY 3471, PLATING AND POLISHING												
Total.....	E2	3 450	61.9	919.0	49.7	98.1	631.9	1 693.9	1 038.4	2 731.4	109.2	225.5
Establishments with an average of—												
1 to 4 employees.....	E9	1 006	2.1	27.2	1.7	3.6	21.5	60.0	31.9	92.2	3.0	7.7
5 to 9 employees.....	E5	745	5.1	70.2	4.1	8.4	50.2	136.7	69.6	206.6	7.8	16.0
10 to 19 employees.....	E2	801	10.9	153.1	8.8	17.0	108.9	267.5	128.3	396.0	15.1	28.0
20 to 49 employees.....	E1	638	19.4	292.3	15.6	29.7	196.5	520.3	296.1	815.8	36.4	60.8
50 to 99 employees.....	E2	191	13.0	197.8	10.5	21.2	131.6	369.9	235.9	605.6	23.0	48.7
100 to 249 employees.....	-	61	8.6	134.1	6.7	13.4	92.6	258.0	223.5	481.1	20.3	50.6
250 to 499 employees.....	-	7	2.9	44.4	2.3	4.8	30.6	81.5	53.2	134.0	3.5	13.5
500 to 999 employees.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	1 214	4.5	48.2	3.7	7.5	35.4	98.0	55.3	153.9	5.3	13.0

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E ¹	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3479, METAL COATING AND ALLIED SERVICES												
Total	E1	1 620	35.0	599.1	27.5	54.1	403.7	1 202.6	1 195.9	2 393.4	91.0	292.1
Establishments with an average of—												
1 to 4 employees.....	E8	483	1.0	12.6	.8	1.7	10.3	29.2	24.2	53.8	3.0	5.2
5 to 9 employees.....	E3	293	2.0	28.5	1.6	3.2	20.3	54.5	40.4	95.2	4.3	8.3
10 to 19 employees.....	E1	337	4.8	67.4	3.8	7.3	46.0	134.2	89.0	223.6	7.8	22.7
20 to 49 employees.....	E1	345	10.5	171.6	8.4	16.3	115.5	323.4	217.5	543.4	28.4	48.2
50 to 99 employees.....	-	114	7.6	137.1	6.1	12.3	96.9	288.9	239.2	528.4	24.8	50.4
100 to 249 employees.....	-	39	5.5	106.7	4.1	8.5	65.4	228.6	363.8	588.7	17.2	88.8
250 to 499 employees.....	-	7	3.6	75.3	2.7	4.9	49.3	143.9	221.8	360.3	5.5	68.5
500 to 999 employees.....	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	446	1.3	14.5	1.1	2.2	11.2	30.7	28.1	59.0	3.6	5.8

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

¹Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

²Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1982 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3451	Screw machine products:										
	Entire industry.....	1 787	41.8	718.9	33.7	65.2	503.2	1 328.0	831.6	2 173.1	77.2
	Establishments with 75 percent specialization or more ..	1 708	39.2	671.3	31.7	61.5	472.9	1 229.4	768.7	2 012.1	71.3
34511	Automotive screw machine products:										
	Establishments with this product class primary.....	286	10.2	185.5	7.9	15.5	125.9	355.0	288.1	648.1	19.0
	Establishments with 75 percent specialization or more in class.....	246	8.8	158.6	6.8	13.4	108.7	298.3	244.7	547.7	14.0
34512	Other screw machine products:										
	Establishments with this product class primary.....	836	26.1	455.3	21.2	40.5	319.6	823.3	461.3	1 290.8	50.0
	Establishments with 75 percent specialization or more in class.....	721	22.1	383.2	18.1	34.7	271.5	685.1	379.1	1 070.8	40.7
3452	Bolts, nuts, rivets, and washers:										
	Entire industry.....	903	52.2	1 008.1	37.2	69.1	644.6	1 981.2	1 588.1	3 661.3	109.8
	Establishments with 75 percent specialization or more ..	823	45.5	871.7	32.6	61.2	559.9	1 743.1	1 379.8	3 206.9	93.2
34524	Externally threaded fasteners, except aircraft:										
	Establishments with this product class primary.....	274	22.3	432.1	15.8	28.6	278.1	775.2	848.6	1 670.3	45.9
	Establishments with 75 percent specialization or more in class.....	209	15.4	291.8	11.2	20.7	193.8	549.2	622.2	1 201.1	31.1
34525	Internally threaded fasteners, except aircraft:										
	Establishments with this product class primary.....	67	4.6	90.3	3.3	6.1	56.8	204.8	150.5	360.7	12.7
	Establishments with 75 percent specialization or more in class.....	48	3.6	71.6	2.6	4.7	44.3	172.1	122.5	298.3	11.3
34526	Nonthreaded fasteners, except aircraft:										
	Establishments with this product class primary.....	99	7.5	137.9	5.2	9.7	83.7	290.5	206.8	502.5	15.0
	Establishments with 75 percent specialization or more in class.....	78	5.2	90.5	3.8	7.0	59.0	193.4	137.4	335.9	9.1
34527	Aircraft aerospace fasteners:										
	Establishments with this product class primary.....	45	10.0	207.6	7.1	13.9	131.7	427.7	180.2	636.3	23.1
	Establishments with 75 percent specialization or more in class.....	32	5.4	108.5	3.9	7.8	70.6	231.4	103.5	356.7	15.2
34528	Other formed parts, made on fastener machines:										
	Establishments with this product class primary.....	70	4.8	94.3	3.5	6.4	63.3	188.7	132.7	324.8	8.0
	Establishments with 75 percent specialization or more in class.....	45	1.9	40.2	1.4	2.7	27.2	77.2	64.2	141.1	3.0
3462	Iron and steel forgings:										
	Entire industry.....	381	30.9	692.5	22.5	40.9	464.1	1 352.6	1 524.6	2 952.5	158.4
	Establishments with 75 percent specialization or more ..	352	24.4	529.0	18.2	33.1	357.5	1 015.4	1 250.9	2 311.1	134.7
34625	Hot impression die impact, press, and upset steel forgings:										
	Establishments with this product class primary.....	159	22.9	525.0	16.6	29.8	356.5	1 014.4	1 114.1	2 188.4	102.4
	Establishments with 75 percent specialization or more in class.....	142	16.4	361.2	12.3	22.1	250.2	662.5	827.4	1 519.1	76.8
34626	Cold impression die impact, press, and upset steel forgings:										
	Establishments with this product class primary.....	21	1.9	39.4	1.5	2.5	26.1	87.9	99.1	188.4	7.4
	Establishments with 75 percent specialization or more in class.....	20	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—
Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3462	Iron and steel forgings—Con.										
34627	Seamless rolled ring forgings, ferrous, made in plants not producing steel (also see code 3312A):										
	Establishments with this product class primary	6	.7	19.6	.5	1.0	11.2	41.5	50.3	93.5	11.4
	Establishments with 75 percent specialization or more in class	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
34628	Open die or smith forgings, hammer or press, ferrous, made in plants not producing steel (also see code 3312B):										
	Establishments with this product class primary	47	3.8	83.5	2.7	5.4	52.5	157.2	211.3	379.6	33.3
	Establishments with 75 percent specialization or more in class	40	3.2	66.6	2.2	4.4	40.3	126.1	166.3	299.5	31.2
3463	Nonferrous forgings:										
	Entire industry	64	7.9	200.7	5.7	10.6	128.7	462.1	569.3	1 093.8	100.3
	Establishments with 75 percent specialization or more ..	56	5.9	151.5	4.3	7.9	96.4	339.1	421.0	798.4	78.5
34635	Hot impression die impact, press, and upset nonferrous forgings										
	Establishments with this product class primary	33	6.7	172.8	4.9	9.0	112.0	388.1	463.2	908.4	90.4
	Establishments with 75 percent specialization or more in class	29	4.9	128.2	3.5	6.5	83.7	276.0	333.7	642.9	(D)
34639	Other nonferrous forgings:										
	Establishments with this product class primary	17	1.1	25.8	.8	1.5	15.3	69.9	99.3	174.2	9.4
	Establishments with 75 percent specialization or more in class	14	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3465	Automotive stampings:										
	Entire industry	668	90.5	2 292.6	74.5	145.2	1 792.4	4 114.4	4 621.6	8 777.4	465.0
	Establishments with 75 percent specialization or more ..	587	84.6	2 178.5	69.9	136.0	1 711.7	3 885.3	4 339.6	8 267.6	447.0
3466	Crowns and closures:										
	Entire industry	64	6.7	143.5	5.4	10.6	106.8	372.4	441.7	804.8	21.6
	Establishments with 75 percent specialization or more ..	62	6.0	128.5	4.8	9.6	94.9	328.2	388.0	710.6	20.2
34661	Metal commercial closures and metal home canning closures:										
	Establishments with this product class primary	29	5.3	116.0	4.4	8.4	89.4	315.6	340.7	647.4	19.1
	Establishments with 75 percent specialization or more in class	25	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
34662	Metal crowns:										
	Establishments with this product class primary	8	1.1	24.7	.8	1.8	15.4	50.7	92.2	142.2	2.1
	Establishments with 75 percent specialization or more in class	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3469	Metal stampings, n.e.c.:										
	Entire industry	2 843	100.4	1 782.7	75.6	146.3	1 154.0	3 414.2	2 986.4	6 437.7	200.1
	Establishments with 75 percent specialization or more ..	2 564	77.7	1 351.6	60.1	115.8	899.4	2 606.2	2 364.3	4 994.8	150.0
34692	Job stampings, except automotive:										
	Establishments with this product class primary	868	48.7	916.5	36.0	69.9	585.1	1 652.5	1 481.7	3 145.0	99.7
	Establishments with 75 percent specialization or more in class	671	31.3	574.2	24.2	46.7	384.0	1 070.8	981.9	2 058.2	62.6
34694	Stamped and spun cooking utensils, aluminum:										
	Establishments with this product class primary	41	6.5	105.7	4.9	9.4	68.1	257.7	236.2	507.0	8.3
	Establishments with 75 percent specialization or more in class	32	4.9	77.8	3.7	7.2	52.0	170.5	182.1	362.2	6.6
34695	Stamped and spun cooking utensils, except aluminum:										
	Establishments with this product class primary	37	4.6	81.7	3.3	5.6	49.0	194.0	139.0	337.6	8.2
	Establishments with 75 percent specialization or more in class	32	4.1	74.1	2.9	5.0	44.5	178.9	124.4	308.3	8.0
34699	Other stamped and pressed metal end products:										
	Establishments with this product class primary	412	25.2	445.0	19.1	37.1	287.2	879.5	753.1	1 635.1	52.6
	Establishments with 75 percent specialization or more in class	334	18.6	331.7	14.4	27.8	216.9	640.0	551.5	1 192.2	39.8
3471	Plating and polishing:										
	Entire industry	3 450	61.9	919.0	49.7	98.1	631.9	1 693.9	1 038.4	2 731.4	109.2
	Establishments with 75 percent specialization or more ..	3 365	58.7	864.8	47.1	93.2	596.2	1 590.1	963.9	2 552.8	102.8
3479	Metal coating and allied services:										
	Entire industry	1 620	35.0	599.1	27.5	54.1	403.7	1 202.6	1 195.9	2 393.4	91.0
	Establishments with 75 percent specialization or more ..	1 543	31.1	529.7	24.6	48.5	358.3	1 075.4	1 102.7	2 185.1	86.5

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio Col. B ÷ Col. B+C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio Col. B ÷ Col. F (percent)
		A	B	C	D	E	F	G	H	I
3451	Screw machine products ----- 1982--	2 173.1	2 029.0	79.0	65.1	96	2 159.7	2 029.0	130.8	94
	1977--	1 771.7	1 629.0	67.1	75.6	96	1 771.4	1 629.0	142.4	92
	1972--	1 063.8	972.4	44.7	46.7	96	1 083.1	972.4	110.7	90
3452	Bolts, nuts, rivets, and washers ----- 1982--	3 661.3	3 239.9	243.9	177.6	93	3 401.0	3 239.9	161.1	95
	1977--	3 319.5	2 936.0	195.9	187.5	94	3 130.3	2 936.0	194.3	94
	1972--	2 027.6	1 802.6	136.8	88.2	93	1 988.4	1 802.6	185.8	91
3462	Iron and steel forgings ----- 1982--	2 952.5	2 557.2	312.8	82.5	89	3 161.3	2 557.2	604.1	81
	1977--	2 795.7	2 495.8	218.9	81.0	92	2 966.7	2 495.8	470.9	84
	1972--	1 416.1	1 259.3	115.9	40.9	92	1 838.7	1 259.3	579.4	68
3463	Nonferrous forgings ----- 1982--	1 093.8	886.3	162.7	44.7	84	1 210.9	886.3	324.6	73
	1977--	456.7	361.5	54.1	41.1	87	540.4	361.5	178.9	67
	1972--	222.5	175.7	34.2	12.6	84	280.8	175.7	105.1	63
3465	Automotive stampings ----- 1982--	8 777.4	7 957.0	654.7	165.7	92	9 041.2	7 957.0	1 084.3	88
	1977--	9 739.2	8 779.9	753.7	205.7	92	9 599.8	8 779.9	819.9	91
	1972--	5 286.0	4 753.5	406.5	126.0	92	5 155.8	4 753.5	402.3	92
3466	Crowns and closures ----- 1982--	804.8	728.6	63.7	12.5	92	790.2	728.6	61.6	92
	1977--	536.9	497.3	26.6	12.9	95	581.0	497.3	83.7	86
	1972--	343.5	283.3	37.8	22.4	88	339.4	283.3	56.1	83
3469	Metal stampings, n.e.c. ----- 1982--	6 437.7	5 453.8	732.0	251.9	88	6 172.3	5 453.8	718.5	88
	1977--	4 735.7	3 990.1	552.7	192.9	88	4 554.5	3 990.1	564.4	88
	1972--	2 688.8	2 217.2	356.7	144.9	86	2 614.9	2 217.2	397.7	85
3471	Plating and polishing ----- 1982--	2 731.4	2 600.4	88.8	42.2	(1)	2 680.3	2 600.4	79.9	(1)
	1977--	1 848.5	1 728.4	50.5	69.7	(1)	1 775.1	1 728.4	46.7	(1)
	1972--	1 034.5	993.4	25.6	15.5	(1)	993.4	993.4	(2)	(1)
3479	Metal coating and allied services ----- 1982--	2 393.4	2 238.9	95.4	59.1	(1)	2 405.2	2 238.9	166.3	(1)
	1977--	1 607.7	1 368.1	114.0	125.6	(1)	1 520.5	1 368.1	152.4	(1)
	1972--	701.8	682.0	16.2	3.6	(1)	682.0	682.0	(2)	(1)

¹Relationships are not meaningful because of predominance of miscellaneous receipts, particularly receipts for contract and commission work on materials owned by others.

²Values for plating, polishing, metal coating, engraving, etc., are not available for establishments classified outside industries 3471 and 3479.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Screw machine products (SIC 3451)	Bolts, nuts, rivets, and washers (SIC 3452)	Iron and steel forgings (SIC 3462)	Nonferrous forgings (SIC 3463)	Automotive stampings (SIC 3465)
	Total -----	(X)	2 173.1	3 661.3	2 952.5	1 093.8	8 777.0
	Primary products -----	(X)	2 029.0	3 239.9	2 557.2	886.3	7 957.0
	Secondary products -----	(X)	79.0	243.9	312.8	162.7	654.7
	Miscellaneous receipts -----	(X)	65.1	177.6	82.5	44.7	165.7
3451-	Screw machine products -----	2 159.7	2 029.0	52.8	-	(D)	-
34511	Automotive screw machine products-----	686.7	644.8	10.6	-	-	-
34512	Other screw machine products-----	1 245.3	1 159.2	41.5	-	(D)	-
34510	Screw machine products, n.s.k.-----	227.8	225.0	.7	-	-	-
3452-	Bolts, nuts, rivets, and washers -----	3 401.0	37.2	3 239.9	-	-	(D)
34524	Externally threaded fasteners, except aircraft-----	1 451.0	11.2	1 375.4	-	-	-
34525	Internally threaded fasteners, except aircraft-----	408.6	9.4	394.1	-	-	(D)
34526	Nonthreaded fasteners, except aircraft-----	526.2	2.7	493.8	-	-	-
34527	Aircraft aerospace fasteners-----	516.7	(D)	(D)	-	-	-
34528	Other formed parts, made on fastener machines-----	329.9	12.5	310.3	-	-	-
34520	Bolts, nuts, rivets, and washers, n.s.k.-----	168.5	(D)	(D)	-	-	-
3462-	Iron and steel forgings -----	3 161.3	-	(D)	2 557.2	(D)	-
34625	Hot impression die impact, press, and upset steel forgings-----	2 265.5	-	(D)	1 794.7	104.0	-
34626	Cold impression die impact, press, and upset steel forgings-----	219.8	-	(D)	182.3	-	-
34627	Seamless rolled ring forgings, ferrous, made in plants not producing steel (also see code 3312A)-----	(D)	-	-	(D)	(D)	-
34628	Open die or smith forgings, hammer or press, ferrous, made in plants not producing steel (also see code 3312B)-----	(D)	-	-	(D)	(D)	-
34620	Iron and steel forgings, n.s.k.-----	84.1	-	-	83.3	-	-
3463-	Nonferrous forgings -----	1 210.9	-	-	(D)	886.3	-
34635	Hot impression die impact, press, and upset nonferrous forgings-----	1 011.2	-	-	197.2	712.7	-
34639	Other nonferrous forgings-----	193.7	-	-	(D)	167.6	-
34630	Nonferrous forgings, n.s.k.-----	6.0	-	-	-	6.0	-
34650	Automotive job stampings -----	9 041.2	-	-	-	-	7 957.0

See footnotes at end of table.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982—Con.

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Screw machine products (SIC 3451)	Bolts, nuts, rivets, and washers (SIC 3452)	Iron and steel forgings (SIC 3462)	Nonferrous forgings (SIC 3463)	Automotive stampings (SIC 3465)
3466-	Crowns and closures	790.2	-	(D)	-	-	-
34661	Metal commercial closures and metal home canning closures	627.1	-	(D)	-	-	-
34662	Metal crowns	145.0	-	-	-	-	-
34660	Crowns and closures, n.s.k.	18.1	-	-	-	-	-
3469-	Metal stampings, n.e.c.	6 172.3	1.2	3.6	(D)	-	(D)
34692	Job stampings, except automotive	2 908.9	(D)	(D)	(D)	-	123.0
34694	Stamped and spun cooking utensils, aluminum	508.2	-	-	-	-	(D)
34695	Stamped and spun cooking utensils, except aluminum	367.7	-	-	-	-	(D)
34699	Other stamped and pressed metal end products	1 584.8	-	(D)	-	-	9.1
34690	Metal stampings, n.e.c., n.s.k.	802.6	(D)	-	(D)	-	1.2
34710	Electroplating, plating, and polishing	2 680.3	-	(D)	-	-	-
34790	Coating, engraving, and allied services	2 405.2	-	3.1	-	-	-
OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP							
2899-	Chemical preparations, n.e.c.	(X)	-	(D)	-	-	-
3079-	Miscellaneous plastics products	(X)	(D)	(D)	-	(D)	-
3312-	Blast furnaces and steel mills	(X)	(D)	(D)	1.9	-	-
3325-	Steel castings, n.e.c.	(X)	-	(D)	(D)	-	-
3361-	Aluminum castings	(X)	(D)	(D)	-	-	-
3369-	Nonferrous castings, n.e.c.	(X)	-	(D)	-	-	-
3423-	Hand and edge tools, n.e.c.	(X)	.9	13.3	(D)	-	(D)
3429-	Hardware, n.e.c.	(X)	(D)	(D)	(D)	-	(D)
3441-	Fabricated structural metal	(X)	(D)	(D)	.6	-	(D)
3442-	Metal doors, sash, and trim	(X)	-	-	-	-	8.0
3443-	Fabricated plate work (boiler shops)	(X)	-	(D)	(D)	(D)	-
3444-	Sheet metal work	(X)	-	3.6	-	-	-
3494-	Valves and pipe fittings	(X)	7.4	(D)	(D)	(D)	-
3495-	Wire springs	(X)	-	(D)	-	-	(D)
3496-	Miscellaneous fabricated wire products	(X)	-	3.4	-	-	-
3499-	Fabricated metal products, n.e.c.	(X)	(D)	3.8	(D)	(D)	-
3524-	Lawn and garden equipment	(X)	-	(D)	-	-	(D)
3533-	Oil field machinery	(X)	-	(D)	-	-	-
3542-	Machine tools, metal forming types	(X)	-	(D)	-	-	-
3544-	Special dies, tools, jigs, and fixtures	(X)	.8	1.0	24.5	16.7	399.8
3545-	Machine tool accessories	(X)	(D)	6.2	(D)	-	-
3546-	Power driven hand tools	(X)	-	21.8	-	-	-
3549-	Metalworking machinery, n.e.c.	(X)	-	(D)	-	-	-
3562-	Ball and roller bearings	(X)	(D)	(D)	-	-	-
3585-	Refrigeration and heating equipment	(X)	-	(D)	-	-	-
3599-	Machinery, except electrical, n.e.c.	(X)	6.1	(D)	(D)	-	(D)
3613-	Switchgear and switchboard apparatus	(X)	-	(D)	-	-	-
3623-	Welding apparatus, electric	(X)	(D)	(D)	-	-	-
3632-	Household refrigerators and freezers	(X)	-	-	-	-	(D)
3714-	Motor vehicle parts and accessories	(X)	(D)	(D)	(D)	-	-
3724-	Aircraft engines and engine parts	(X)	-	2.2	-	-	-
3769-	Space vehicle equipment, n.e.c.	(X)	(D)	(D)	-	-	-
3795-	Tanks and tank components	(X)	-	-	(D)	-	(D)
3963-	Buttons	(X)	-	(D)	-	-	-
3964-	Needles, pins, and fasteners	(X)	-	6.5	-	-	-
3999-	Manufacturing industries, n.e.c.	(X)	(D)	-	-	-	-
MISCELLANEOUS RECEIPTS							
93000 00	Receipts for work done for others on their materials	(X)	25.6	11.9	19.1	(D)	23.9
93000 35	Receipts for precision machining on materials owned by others	(X)	-	(D)	(D)	-	.2
99980 13	Sales of scrap and refuse	(X)	12.8	8.7	12.3	(D)	78.3
99980 31	Receipts for installation or construction of products of the establishment	(X)	-	-	-	-	-
99980 41	Receipts for research and development work	(X)	-	-	-	-	(D)
99980 61	Receipts for repair work	(X)	-	-	(D)	-	(D)
99980 98	Other miscellaneous receipts, including receipts for repair work, etc. ..	(X)	5.1	14.5	4.8	1.3	18.5
99980 00	Miscellaneous receipts, n.s.k.	(X)	3.7	(D)	1.0	(D)	1.8
99989 00	Sales of products bought and resold without further manufacture, processing, or assembly at establishment	(X)	21.7	142.4	46.3	6.7	44.4
1982 product code	Product group, product class, and miscellaneous receipts		Crowns and closures (SIC 3466)	Metal stampings, n.e.c. (SIC 3469)	Plating and polishing (SIC 3471)	Metal coating and allied services (SIC 3479)	Other industries
	Total		804.8	6 437.7	2 731.4	2 393.4	(X)
	Primary products		728.6	5 453.8	2 600.4	2 238.9	(X)
	Secondary products		63.7	732.0	88.8	95.4	(X)
	Miscellaneous receipts		12.5	251.9	42.2	59.1	(X)
3451-	Screw machine products		-	(D)	-	-	(D)
34511	Automotive screw machine products		-	-	-	-	31.3
34512	Other screw machine products		-	2.8	-	-	(D)
34510	Screw machine products, n.s.k.		-	(D)	-	-	(D)
3452-	Bolts, nuts, rivets, and washers		-	(D)	-	-	121.8
34524	Externally threaded fasteners, except aircraft		-	(D)	-	-	(D)
34525	Internally threaded fasteners, except aircraft		-	-	-	-	(D)
34526	Nonthreaded fasteners, except aircraft		-	(D)	-	-	(D)
34527	Aircraft aerospace fasteners		-	-	-	-	(D)
34528	Other formed parts, made on fastener machines		-	(D)	-	-	(D)
34520	Bolts, nuts, rivets, and washers, n.s.k.		-	-	-	-	(D)
3462-	Iron and steel forgings		-	-	-	-	472.4
34625	Hot impression die impact, press, and upset steel forgings		-	-	-	-	(D)
34626	Cold impression die impact, press, and upset steel forgings		-	-	-	-	(D)
34627	Seamless rolled ring forgings, ferrous, made in plants not producing steel (also see code 3312A)		-	-	-	-	(D)
34628	Open die or smith forgings, hammer or press, ferrous, made in plants not producing steel (also see code 3312B)		-	-	-	-	(D)
34620	Iron and steel forgings, n.s.k.		-	-	-	-	.8

See footnotes at end of table.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982—Con.

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	Crowns and closures (SIC 3466)	Metal stampings, n.e.c. (SIC 3469)	Plating and polishing (SIC 3471)	Metal coating and allied services (SIC 3479)	Other industries
3463-	Nonferrous forgings	-	-	-	(D)	(D)
34635	Hot impression die impact, press, and upset nonferrous forgings	-	-	-	-	101.3
34639	Other nonferrous forgings	-	-	-	(D)	(D)
34630	Nonferrous forgings, n.s.k.	-	-	-	-	-
34650	Automotive job stampings	(D)	180.4	(D)	(D)	886.6
3466-	Crowns and closures	728.6	(D)	-	-	59.8
34661	Metal commercial closures and metal home canning closures	598.8	(D)	-	-	(D)
34662	Metal crowns	(D)	-	-	-	(D)
34660	Crowns and closures, n.s.k.	(D)	-	-	-	-
3469-	Metal stampings, n.e.c.	(D)	5 453.8	(D)	(D)	568.1
34692	Job stampings, except automotive	-	2 573.4	(D)	(D)	207.0
34694	Stamped and spun cooking utensils, aluminum	-	428.8	-	-	(D)
34695	Stamped and spun cooking utensils, except aluminum	-	291.6	-	-	(D)
34699	Other stamped and pressed metal end products	(D)	1 394.5	(D)	(D)	174.3
34690	Metal stampings, n.e.c., n.s.k.	-	765.4	(D)	-	33.0
34710	Electroplating, plating, and polishing	-	(D)	2 600.4	(D)	49.7
34790	Coating, engraving, and allied services	-	2.1	50.1	2 238.9	111.1
OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP						
2514-	Metal household furniture	-	(D)	(D)	(D)	(X)
2655-	Fiber cans, drums, and similar products	-	(D)	-	-	(X)
2751-	Commercial printing, letterpress	-	(D)	1.3	4.5	(X)
2752-	Commercial printing, lithographic	-	-	-	8.0	(X)
3079-	Miscellaneous plastics products	(D)	13.8	(D)	4.5	(X)
3322-	Malleable iron castings	-	(D)	-	-	(X)
3325-	Steel castings, n.e.c.	-	(D)	-	-	(X)
3398-	Metal heat treating	-	(D)	9.7	1.5	(X)
3412-	Metal barrels, drums, and pails	-	(D)	-	-	(X)
3423-	Hand and edge tools, n.e.c.	-	7.5	(D)	-	(X)
3429-	Hardware, n.e.c.	-	20.1	-	-	(X)
3433-	Heating equipment, except electric	-	(D)	-	-	(X)
3441-	Fabricated structural metal	(D)	5.9	(D)	-	(X)
3443-	Fabricated plate work (boiler shops)	-	6.6	-	(D)	(X)
3444-	Sheet metal work	-	2.9	-	(D)	(X)
3446-	Architectural and ornamental metal work	-	(D)	-	(D)	(X)
3449-	Miscellaneous metal work	-	(D)	-	(D)	(X)
3495-	Wire springs	-	9.2	-	-	(X)
3496-	Miscellaneous fabricated wire products	-	12.0	-	(D)	(X)
3498-	Fabricated pipe and fittings	-	(D)	4.6	-	(X)
3499-	Fabricated metal products, n.e.c.	(D)	12.9	1.6	1.4	(X)
3519-	Internal combustion engines, n.e.c.	-	(D)	-	-	(X)
3531-	Construction machinery	(D)	(D)	-	-	(X)
3544-	Special dies, tools, jigs, and fixtures	-	109.6	-	2.3	(X)
3549-	Metalworking machinery, n.e.c.	-	13.0	-	(D)	(X)
3564-	Blowers and fans	-	(D)	-	-	(X)
3569-	General industrial machinery, n.e.c.	-	(D)	-	(D)	(X)
3574-	Calculating and accounting machines	-	(D)	-	-	(X)
3585-	Refrigeration and heating equipment	-	6.2	-	-	(X)
3589-	Service industry machinery, n.e.c.	-	(D)	-	(D)	(X)
3599-	Machinery, except electrical, n.e.c.	-	16.2	5.2	2.7	(X)
3613-	Switchgear and switchboard apparatus	-	(D)	-	-	(X)
3634-	Electric housewares and fans	-	37.7	-	-	(X)
3643-	Current-carrying wiring devices	-	(D)	(D)	-	(X)
3662-	Radio and TV communication equipment	-	(D)	-	-	(X)
3678-	Electronic connectors	-	(D)	-	-	(X)
3714-	Motor vehicle parts and accessories	-	4.9	-	-	(X)
3799-	Transportation equipment, n.e.c.	-	(D)	-	-	(X)
3822-	Environmental controls	-	(D)	-	(D)	(X)
3963-	Buttons	-	(D)	-	-	(X)
MISCELLANEOUS RECEIPTS						
93000 00	Receipts for work done for others on their materials	(D)	86.7	10.5	15.7	(X)
93000 35	Receipts for precision machining on materials owned by others	-	(D)	-	-	(X)
99980 13	Sales of scrap and refuse	6.1	27.8	4.7	8.2	(X)
99980 31	Receipts for installation or construction of products of the establishment	-	(D)	-	-	(X)
99980 41	Receipts for research and development work	-	.7	-	(D)	(X)
99980 61	Receipts for repair work	-	.4	(D)	(D)	(X)
99980 98	Other miscellaneous receipts, including receipts for repair work, etc. ....	.9	8.2	4.8	11.7	(X)
99980 00	Miscellaneous receipts, n.s.k.	-	2.5	(D)	.4	(X)
99989 00	Sales of products bought and resold without further manufacture, processing, or assembly at establishment	4.4	126.4	21.7	23.0	(X)

Table 5c-2. **Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982**

[Million dollars. Table is a continuation of table 5c-1 and shows where products of industries in this chapter (referred to as primary products and listed in table 6a) are made. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column of table 5c-1. Specified "Other industries" are listed in this table if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Other industries	Value	1982 product code	Other industries	Value
3451-	SCREW MACHINE PRODUCTS		3466-	CROWNS AND CLOSURES	
	3494 Valves and pipe fittings	6.2		3079 Miscellaneous plastics products	(D)
	3561 Pumps and pumping equipment	(D)		3411 Metal cans	(D)
	3586 Measuring and dispensing pumps	(D)		3499 Fabricated metal products, n.e.c.	(D)
	3592 Carburetors, pistons, rings, valves	(D)	3469-	METAL STAMPINGS, N.E.C.	
	3714 Motor vehicle parts and accessories	(D)		2542 Metal partitions and fixtures	6.4
3452-	BOLTS, NUTS, RIVETS, AND WASHERS			2655 Fiber cans, drums, and similar products	(D)
	3312 Blast furnaces and steel mills	(D)		3079 Miscellaneous plastics products	22.9
	3423 Hand and edge tools, n.e.c.	12.1		3312 Blast furnaces and steel mills	(D)
	3429 Hardware, n.e.c.	(D)		3429 Hardware, n.e.c.	14.6
	3562 Ball and roller bearings	(D)		3431 Metal sanitary ware	(D)
	3568 Power transmission equipment, n.e.c.	(D)		3441 Fabricated structural metal	10.1
	3621 Motors and generators	(D)		3444 Sheet metal work	20.5
	3622 Industrial controls	(D)		3446 Architectural metal work	12.8
3462-	IRON AND STEEL FORGINGS			3495 Wire springs	16.1
	3312 Blast furnaces and steel mills	117.4		3496 Miscellaneous fabricated wire products	(D)
	3325 Steel foundries, n.e.c.	(D)		3499 Fabricated metal products, n.e.c.	6.9
	3443 Fabricated plate work (boiler shops)	(D)		3524 Lawn and garden equipment	(D)
	3494 Valves and pipe fittings	34.7		3536 Hoists, cranes, and monorails	(D)
	3499 Fabricated metal products, n.e.c.	(D)		3544 Special dies, tools, jigs, and fixtures	28.8
	3523 Farm machinery and equipment	(D)		3562 Ball and roller bearings	(D)
	3533 Oil field machinery	(D)		3599 Machinery, except electrical, n.e.c.	11.8
	3711 Motor vehicles and car bodies	(D)		3621 Motors and generators	(D)
	3714 Motor vehicle parts and accessories	(D)		3634 Electric housewares and fans	134.5
3463-	NONFERROUS FORGINGS			3645 Residential lighting fixtures	(D)
	3351 Copper rolling and drawing	(D)		3714 Motor vehicle parts and accessories	14.5
	3354 Aluminum extruded products	(D)	3471-	PLATING AND POLISHING	6.5
	3356 Nonferrous rolling and drawing, n.e.c.	(D)		3354 Aluminum extruded products	(D)
	3483 Ammunition, except for small arms, n.e.c.	(D)		3429 Hardware, n.e.c.	(D)
3465-	AUTOMOTIVE STAMPINGS			3678 Electronic connectors	(D)
	2399 Fabricated textile products, n.e.c.	(D)	3479-	METAL COATING AND ALLIED SERVICES	
	3412 Metal barrels, drums, and pails	(D)		3079 Miscellaneous plastics products	(D)
	3444 Sheet metal work	7.5		3431 Metal sanitary ware	(D)
	3493 Steel springs, except wire	(D)		3444 Sheet metal work	(D)
	3524 Lawn and garden equipment	(D)		3559 Special industry machinery, n.e.c.	5.8
	3544 Special dies, tools, jigs, and fixtures	18.5		3647 Vehicular lighting equipment	(D)
	3711 Motor vehicles and car bodies	(D)		3679 Electronic components, n.e.c.	(D)
	3714 Motor vehicle parts and accessories	(D)		3743 Railroad equipment	(D)

Table 6a-1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982		1977	
		Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)	Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)
	SCREW MACHINE PRODUCTS				
3451- —	Total	(NA)	2 159.7	(NA)	1 771.4
34511 —	Automotive screw machine products:				
34511 00	Nonstandard items made from rod, bar, or tube stock on automatic or hand-operated screw machines - automotive	391	686.7	424	598.4
34512 —	Other screw machine products	(NA)	1 245.3	(NA)	958.6
	Nonstandard items made from rod, bar, or tube stock on automatic or hand-operated screw machines on basis of end product in which to be incorporated:				
34512 31	Aircraft	95	92.1	(NA)	80.2
34512 39	Ordnance	81	54.0	112	106.5
34512 42	Household appliances, including radio and television	153	106.2	157	106.5
34512 52	Electric and electronic equipment, except household appliances	257	194.2	(³)	(³)
34512 62	Machinery	255	266.7	202	193.7
34512 99	All other end uses	478	507.4	337	3456.9
34512 00	Other screw machine products, n.s.k.	(NA)	24.6	(NA)	121.3
34510 00	Screw machine products, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	174.2	(NA)	165.6
34510 02	Screw machine products, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	53.6	(NA)	48.8

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982				1977				
		Number of companies with shipments of \$100,000 or more	Product shipments ¹			Number of companies with shipments of \$100,000 or more	Product shipments ¹			
			Quantity ²		Value (million dollars)		Quantity ²		Value (million dollars)	
			Million pieces	Million pounds			Million pieces	Million pounds		
	BOLTS, NUTS, RIVETS, AND WASHERS									
3452- --	Total -----	(NA)	(X)	(X)	3 401.0	(NA)	(X)	(X)	3 130.3	
34524 --	Externally threaded fasteners (except aircraft) -----	(NA)	(X)	(X)	1 451.0	(NA)	(X)	(X)	1 451.2	
34524 11	Bolts (except nonmetallic):									
34524 12	Mine roof bolts -----	15	(S)	(S)	165.2	18	(S)	*570.9	125.0	
34524 19	Hex bolts, including heavy, tap and joint, excluding high strength structural -----	62	(S)	**170.9	176.3	59	(S)	*379.6	204.8	
34524 39	Other metal bolts, including square, round, plow, high strength structural, and bent bolts -----	110	(S)	(S)	367.3	83	(X)	(X)	180.2	
34524 45	Screws (except nonmetallic):									
34524 89	Cap, set, machine, lag, flange, and self-locking -----	80	5 333.2	(S)	246.6	83	(S)	(S)	376.0	
34524 00	Tapping, including fillister, flat, hex, oval, pan and truss, and wood, including flat, oval, and round -----	67	(S)	(S)	178.9	56	24 034.7	**204.6	252.3	
34525 --	Internally threaded fasteners (except aircraft) -----	(NA)	(X)	(X)	408.6	(NA)	(X)	(X)	412.6	
34525 04	Nuts (except nonmetallic):									
34525 29	Hex, including flanges, double chamfered, washer face, flat, jam, slotted, thick, castle, heavy, machine, and locking -----	78	2 763.1	(S)	234.2	61	(S)	**250.0	290.9	
34525 89	Square, including flat, washer, crowned, heavy, track, sleeve, and machine; sheet metal; weld; wing; and cage, anchor, and nut retainers -----	23	(S)	(S)	41.5	27	(S)	(S)	69.8	
34525 00	Other internally threaded metal fasteners not mentioned above, including flanged nuts (all types, except hex) and locknuts (all types, except hex) and all nonmetallic internally threaded fasteners -----	53	(X)	(X)	132.4	33	(X)	(X)	46.8	
34526 --	Nonthreaded fasteners (except aircraft) -----	(NA)	(X)	(X)	526.2	(NA)	(X)	(X)	517.2	
34526 09	Rivets (except nonmetallic):									
34526 15	Solid -----	36	1 247.8	(S)	80.0	32	(S)	**71.0	55.6	
34526 35	Tubular, split (including rivet caps), and blind -----	33	(S)	(S)	114.0	36	(S)	*93.0	121.2	
34526 79	Washers (except nonmetallic) -----	51	3 402.7	(S)	116.0	42	(S)	**240.7	144.8	
34526 00	Other nonthreaded metal fasteners not mentioned above, including pins (all types), and all nonmetallic nonthreaded products -----	70	(X)	(X)	215.4	59	(X)	(X)	186.4	
34527 --	Nonthreaded fasteners (except aircraft), n.s.k. -----	(NA)	(X)	(X)	.8	(NA)	(X)	(X)	9.2	
34527 01	Aircraft aerospace fasteners (meet specifications for flying vehicles) -----	(NA)	(X)	(X)	516.7	(NA)	(X)	(X)	237.9	
34527 06	Externally threaded:									
34527 15	Bolts:									
34527 45	Less than 161 KSI tensile -----	16	29.5	(S)	34.6	10	(S)	(S)	24.0	
34527 59	161 KSI tensile or more -----	15	24.6	(S)	58.7	11	(S)	**3.9	26.8	
34528 11	Screws, all types; and studs, all types -----	20	(S)	(S)	131.6	17	**210.0	(S)	47.4	
34528 21	Internally threaded:									
34528 31	Locknuts, including flanged locknuts -----	12	(S)	(S)	79.2	10	*382.2	**6.4	43.5	
34528 98	Other, including flanged nuts (all types, except flanged locknuts), hex square nuts (all types), and sheet metal fasteners -----	13	33.9	(S)	137.6	11	(S)	(S)	46.7	
34528 00	Nonthreaded:									
34529 00	Washers, all types -----	5	(S)	(S)	6.0	7	(S)	(S)	4.8	
34520 00	Rivets, all types -----	12	347.9	(S)	46.4	10	(S)	(S)	32.3	
34520 02	Pins, all types -----	11	50.4	(S)	20.5	10	(S)	(S)	9.6	
34520 04	Aircraft aerospace fasteners (meet specifications for flying vehicles), n.s.k. -----	(NA)	(X)	(X)	2.1	(NA)	(X)	(X)	2.8	
34520 06	Other formed parts (made on fastener machines) -----	(NA)	(X)	(X)	329.9	(NA)	(X)	(X)	284.6	
34520 08	Automotive -----	37	610.7	(S)	124.7	32	(S)	**239.1	174.5	
34520 10	Household appliances, including radio and television -----	16	(S)	(S)	24.8	10	(S)	(S)	10.5	
34520 12	Aircraft -----	19	(S)	(S)	40.4	8	(S)	(S)	10.2	
34520 14	All other, including ordnance -----	63	(S)	(S)	139.3	40	(S)	(S)	86.2	
34520 16	Other formed parts (made on fastener machines), n.s.k. -----	(NA)	(X)	(X)	.8	(NA)	(X)	(X)	3.2	
34520 18	Bolts, nuts, rivets, and washers, n.s.k., typically for establishments with 20 employees or more (see note) -----	(NA)	(X)	(X)	105.4	(NA)	(X)	(X)	110.4	
34520 20	Bolts, nuts, rivets, and washers, n.s.k., typically for establishments with less than 20 employees (see note) -----	(NA)	(X)	(X)	63.1	(NA)	(X)	(X)	116.5	
1982 product code	Product	Number of companies with shipments of \$100,000 or more	1982 product shipments ¹				1977 product shipments ¹			
			Total, including interplant transfers		Commercial		Total, including interplant transfers		Commercial	
			Quantity ²	Value (million dollars)	Quantity	Value (million dollars)	Quantity ²	Value (million dollars)	Quantity	Value (million dollars)
	IRON AND STEEL FORGINGS									
3462- --	Total -----	(NA)	(X)	3 571.4	(X)	2 791.4	(X)	3 349.2	(X)	2 658.2
3312A --		(NA)	(X)	3 161.3	(X)	2 639.9	(X)	2 966.7	(X)	2 343.5
3312B --		(NA)	(X)	410.1	(X)	151.5	(X)	382.5	(X)	314.7
34625 --	Hot impresslon die impact, press, and upset steel forgings:									
34625 00	Hot impression die impact, press, and upset steel forgings ----- 1,000 s tons	157	1 326.8	2 265.5	1 041.2	1 878.4	1 758.7	2 155.4	1 446.7	1 688.5

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	Number of companies with shipments of \$100,000 or more	1982 product shipments ¹				1977 product shipments ¹			
			Total, including interplant transfers		Commercial		Total, including interplant transfers		Commercial	
			Quantity ²	Value (million dollars)	Quantity	Value (million dollars)	Quantity ²	Value (million dollars)	Quantity	Value (million dollars)
	IRON AND STEEL FORGINGS—Con.									
34626 — 34626 00	Cold impression die impact, press and upset steel forgings: Cold impression die impact, press and upset steel forgings ----- 1,000 s tons..	30	112.7	219.8	(D)	(D)	238.5	215.7	174.0	164.6
3312A — 34627 — 3312A 00 34627 00 3312B —	Seamless rolled ring forgings (ferrous): Seamless rolled ring forgings (ferrous) ----- do..	22	(X)	254.3	(X)	(D)	(S)	207.4	(S)	207.4
34628 — 3312B 00 34628 00 34620 00	Open die or smith forgings, hammer or press (ferrous): Open die or smith forgings, hammer or press (ferrous) ----- do..	79	(X)	747.6	(X)	(D)	495.2	673.6	430.3	597.7
34620 02	Iron and steel forgings, n.s.k., typically for establishments with 20 employees or more (see note) -----	(NA)	(X)	27.7	(X)	(X)	(X)	59.7	(X)	(X)
	Iron and steel forgings, n.s.k., typically for establishments with less than 20 employees (see note) -----	(NA)	(X)	56.4	(X)	(X)	(X)	37.4	(X)	(X)
	NONFERROUS FORGINGS									
3463- —	Total -----	(NA)	(X)	1 210.9	(X)	1 172.5	(X)	540.4	(NA)	(NA)
34635 — 34635 21	Hot impression die impact, press, and upset nonferrous forgings ----- Aluminum and aluminum alloy ----- 1,000 s tons..	(NA) 34	(X) 48.6	1 011.2 382.4	(X)	984.2	(X)	468.1	(NA)	(NA)
34635 23 34635 25 34635 29 34635 00	Titanium and titanium alloy ----- do.. Copper and copper-base alloy ----- do.. Other hot impression nonferrous forgings ----- do.. Hot impression die impact, press, and upset nonferrous forgings, n.s.k. -----	23 12 17 (NA)	6.4 15.2 6.0 (X)	492.2 71.9 64.7 -	69.7	984.2	53.6 3.8 (*) 436.2	245.0 113.6 (*) 4109.5	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)
34639 — 34639 15	Other nonferrous forgings ----- Cold impression die impact, press, and upset nonferrous forgings ----- 1,000 s tons..	(NA) 7	(X) *3.6	193.7 18.2	(X)	188.3	(X)	61.2	(NA)	(NA)
34639 25 34639 35	Seamless rolled ring forgings (nonferrous) ----- do.. Open die or smith forgings, hammer or press (nonferrous) ----- do..	9 20	7.5 16.3	96.3 79.2	*2.1 7.5	12.9 96.3	2.1 (X)	8.5 15.9	(NA) (NA)	(NA) (NA)
34639 00 34630 00 34630 02	Other nonferrous forgings, n.s.k. ----- Nonferrous forgings, n.s.k., typically for establishments with 10 employees or more (see note) ----- Nonferrous forgings, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA) (NA) (NA)	(X) (X) (X)	- 1.4 4.6	(X) (X) (X)	(X) (NA) (NA)	(NA) (X) (X)	36.8 6.9 4.2	(NA) (NA) (NA)	(NA) (NA) (NA)
1982 product code	Product	1982				1977				
		Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)			Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)			
	AUTOMOTIVE STAMPINGS									
3465- —	Total -----	(NA)	9 041.2		(NA)	9 599.8				
34650 — 34650 00 34650 02	Job stampings, automotive: Automotive job stampings (truck, bus, and passenger car) ----- Automotive stampings, n.s.k., typically for establishments with less than 20 employees (see note) -----	610 (NA)	8 957.4 83.9		462	9 599.8				

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
CROWNS AND CLOSURES							
3466--	Total -----	(NA)	(X)	790.2	(NA)	(X)	581.0
34661 --	Metal commercial closures and metal home canning						
34661 00	closures, except crowns:						
	Metal commercial closures and metal home canning						
	closures, including milk bottle closures:						
	As reported in the census of manufactures -----	27	685.7	627.1	39	(X)	470.7
	As reported in the Current Industrial Report M-34H,						
	Shipments of Closures for Containers -----	(NA)	(X)	637.5	(NA)	(X)	460.8
34661 03	Metal commercial closures:						
	Screw, thread, and lug types (nonvacuum) ----- millions--	(NA)	7 483.8	189.3	(NA)	9 622.9	146.0
34661 44	Metal caps (vacuum):						
	Continuous thread caps ----- do--	(NA)	7 742.2	216.9	(NA)	576.6	14.4
34661 43	Other than continuous thread caps ----- do--	(NA)			(NA)	6 897.8	142.6
34661 82	Home canning closures ----- mil gross--	(NA)	(D)	(⁵)	(NA)	16.3	40.1
34661 56	Metal caps, for metal cans and tubes ----- millions--	(NA)	390.5	8.6	(NA)	529.8	7.1
34661 47	Metal caps for plastics containers, vials, and						
	tubes ----- do--	(NA)	260.9	7.6	(NA)	771.1	8.4
34661 59	Child resistant metal closures ----- do--	(NA)	121.1	3.3			
34661 83	All other metal closures ----- mil gross--	(NA)	86.1	126.2	(NA)	87.3	102.2
34661 0A	Metal commercial closures and metal home canning						
	closures, except crowns, n.s.k. -----	(NA)	(X)	585.6	-	-	-
34662 --	Metal crowns:						
34662 00	Metal crowns for glass and metal containers:						
	As reported in the census of manufactures -----	8	(X)	145.0	7	(X)	104.8
	As reported in the Current Industrial Report M-34H,						
	Shipments of Closures for Containers -----	(NA)	(X)	154.9	(NA)	256.3	107.6
	Soft drink containers:						
34662 16	Convenience type ----- mil gross--	(NA)	7.1	3.6	(NA)	127.4	56.2
34662 17	Conventional type ----- do--	(NA)	79.0	48.5			
	Beer and all other:						
34662 21	Convenience type ----- do--	(NA)	108.5	66.9	(NA)	83.2	34.3
34662 22	Conventional type ----- do--	(NA)	28.1	16.8	(NA)	46.0	17.2
34662 0A	Metal crowns, n.s.k. -----	(NA)	(X)	19.1	-	-	-
34660 00	Crowns and closures, n.s.k., typically for establishments						
	with 5 employees or more (see note) -----	(NA)	(X)	4.4	(NA)	(X)	1.5
34660 02	Crowns and closures, n.s.k., typically for establishments						
	with less than 5 employees (see note) -----	(NA)	(X)	13.7	(NA)	(X)	4.1
METAL STAMPINGS, N.E.C.							
3469--	Total -----	(NA)	(X)	6 172.3	(NA)	(X)	4 554.5
34692 --	Job stampings, except automotive -----	(NA)	(X)	2 908.9	(NA)	(X)	2 199.3
34692 01	Recreational vehicle stampings (motor homes, travel						
	trailers, etc.) -----	34	(X)	23.3	(NA)	(X)	(⁶)
34692 05	Motor and generator stampings -----	71	(X)	80.9	(NA)	(X)	(⁶)
34692 11	Aviation stampings -----	80	(X)	198.4	61	(X)	83.7
32694 15	Agricultural equipment stampings, including tractor -----	95	(X)	94.6	89	(X)	108.0
34692 25	Electrical appliance stampings, except refrigeration and						
	laundry equipment -----	165	(X)	157.9	143	(X)	150.6
34692 31	Furniture stampings -----	59	(X)	54.3	46	(X)	51.3
34692 41	Office machine stampings -----	129	(X)	162.6	110	(X)	89.6
34692 52	Radio and phonograph stampings -----	38	(X)	27.9	38	(X)	39.7
34692 53	Television stampings -----	46	(X)	56.4	54	(X)	53.9
34692 61	Refrigerator stampings (residential, commercial, and						
	industrial) -----	36	(X)	88.6	45	(X)	105.4
34692 71	Stove, heater, and air conditioner stampings (residential,						
	commercial, and industrial) -----	74	(X)	74.1	83	(X)	84.0
34692 84	Laundry equipment stampings (residential, commercial,						
	and industrial) -----	31	(X)	62.7	20	(X)	27.8
34692 89	Other industrial equipment stampings -----	233	(X)	323.3	207	(X)	252.1
34692 99	Other job stampings -----	552	(X)	1 407.6	(NA)	(X)	⁶ 1 013.1
34692 00	Job stampings, except automotive, n.s.k. -----	(NA)	(X)	96.4	(NA)	(X)	140.1
34694 --	Stamped and spun utensils, cooking and kitchen,						
	aluminum -----	(NA)	(X)	508.2	(NA)	(X)	330.1
34694 11	Top of range household utensils (items generally used						
	directly on top of source of heat), including pressure						
	cookers ----- millions--	23	*82.5	327.7	17	*91.1	187.9
34694 14	Bakeware, pantryware, and miscellaneous household						
	utensils ----- do--	28	(S)	143.8	20	(S)	81.7
34694 17	Camping and outdoor cooking equipment ----- do--	10	(S)	8.7	8	(S)	18.8
34694 29	Other, including commercial and hospital ----- do--	17	(S)	27.1	15	(S)	38.7
34694 00	Stamped and spun utensils, cooking and kitchen,						
	aluminum, n.s.k. -----	(NA)	(X)	.8	(NA)	(X)	3.0
34695 --	Stamped and spun utensils, cooking and kitchen, except						
	aluminum -----	(NA)	(X)	367.7	(NA)	(X)	385.4
	Stainless steel:						
34695 07	Top of range household utensils (items generally used						
	directly on top of source of heat) ----- millions--	15	(S)	153.5	17	(S)	191.7
34695 09	Bakeware, pantryware, and miscellaneous household						
	utensils ----- do--	13	(S)	17.2	9	(S)	11.8
34695 15	Other, including commercial, hospital, and outdoor						
	cooking equipment ----- do--	25	(S)	47.0	14	(S)	22.4

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	METAL STAMPINGS, N.E.C.—Con.						
34695 —	Stamped and spun utensils, cooking and kitchen, except aluminum —Con.						
	Tinware:						
34695 21	Household ----- millions..	6	(S)	69.9	10	(S)	49.4
34695 24	Other, including commercial, hospital, and outdoor cooking equipment ----- do..	4			5		
34695 27	Vitreous enameled cooking and kitchen utensils -----	2	(X)	76.2	4	(X)	34.0
34695 98	Other stamped and spun cooking and kitchen utensils, including copper -----	11			12		
34695 00	Stamped and spun utensils, cooking and kitchen, except aluminum, n.s.k. -----	(NA)	(X)	4.0	(NA)	(X)	9.2
34699 —	Other stamped and pressed metal end products, including vitreous enameled products -----	(NA)	(X)	1 584.8	(NA)	(X)	1 073.0
	Vitreous (porcelain) enameled products, excluding cooking and kitchen utensils:						
34699 41	Architectural parts (exterior and interior), including store front and curtain wall components -----	18	(X)	23.2	9	(X)	4.5
34699 48	Other products, including refrigerator parts, commercial and hospital utensils, and laundry equipment parts sold separately -----	16	(X)	26.5	15	(X)	29.2
34699 59	Perforated metal end products -----	31	(X)	93.5	28	(X)	62.2
	Pails, ash cans, garbage cans, tubs, etc. (excluding shipping containers):						
34699 61	Galvanized steel -----	15	(X)	50.3	16	(X)	47.8
34699 69	Other metal, including other grades of steel -----	20	(X)	41.2	24	(X)	50.6
34699 71	Electronic enclosures (stamped and/or pressed) -----	190	(X)	520.0	112	(X)	183.0
34699 85	Mail boxes (commercial and multiple unit residential) -----	17	(X)	43.6	10	(X)	14.5
34699 89	Tool boxes -----	29	(X)	186.1	(NA)	(X)	(7)
34699 99	Other stamped and pressed metal end products -----	281	(X)	576.5	(NA)	(X)	7626.5
34699 00	Other stamped and pressed metal end products, including vitreous enameled products, n.s.k. -----	(NA)	(X)	23.9	(NA)	(X)	54.7
34690 00	Metal stampings, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	588.3	(NA)	(X)	415.2
34690 02	Metal stampings, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	214.3	(NA)	(X)	151.5
1982 product code	Product	1982		1977			
		Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)	Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)		
	PLATING AND POLISHING						
3471- —	Total -----	(NA)	2 680.3	(NA)	1 775.1		
34710 —	Electroplating, plating, and polishing:						
34710 00	Electroplating, plating, and polishing -----	(NA)	2 680.3	(NA)	1 775.1		
	METAL COATING AND ALLIED SERVICES						
3479- —	Total -----	(NA)	2 405.2	(NA)	1 520.5		
	Coating, engraving, and allied services:						
34790 —	Etching and engraving metal name plates -----	86	94.2	54	56.3		
34790 13	Other engraving -----	88	69.4	26	35.3		
34790 19	Galvanizing and other hot dip coating -----	136	524.8	87	387.5		
34790 31	Organic coatings, enamels, lacquers, including alkydes, vinyls, acrylics, plastisols, etc.:						
34790 61	Coil coating -----	43	460.5	24	296.1		
34790 71	Spray coating, including electrostatic coating -----	479	655.8	210	265.0		
34790 81	All other, including curtain coating, wash coating, etc. -----	187	466.9	88	213.9		
34790 00	Metal coating and allied services, n.s.k., typically for establishments with 5 employees or more (see note) -----	(NA)	*74.5	(NA)	*211.4		
34790 02	Metal coating and allied services, n.s.k., typically for establishments with less than 5 employees (see note) -----	(NA)	59.0	(NA)	55.0		

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³For 1977, product code 34512 52 is included with product code 34512 99.

⁴For 1977, product code 34635 25 was combined with product code 34635 29 to avoid disclosing data for individual companies.

⁵For 1982, product code 34661 82 was combined with product code 34661 0A.

⁶For 1977, product codes 34692 01 and 34692 05 were combined with product code 34692 99.

⁷For 1977, product code 34699 89 was included with product code 34699 99.

⁸In 1977, small establishments with more than 5 employees reported on short forms which requested only product class total. In 1982, these establishments were requested to report 7-digit product detail. Therefore, 1982 data for products may not be directly comparable with 1977 data.

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
34627 3312A	Seamless rolled ring forgings ----- 1 000 s tons..	22	(X)	254.3	(NA)	(S)	207.4
34627 3312A	Made in forging mills ----- do..	20	(X)	(D)	(NA)	(S)	113.8
	Made in steel mills ----- do..	2	(X)	(D)	(NA)	(S)	93.6
3462B 3312B	Open die or smith forgings ----- do..	79	(X)	747.6	(NA)	495.2	673.6
34628 3312B	Made in forging mills ----- do..	69	(X)	(D)	(NA)	309.6	384.7
	Made in steel mills ----- do..	10	(X)	(D)	(NA)	185.6	288.9

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
34511, AUTOMOTIVE SCREW MACHINE PRODUCTS			34512, OTHER SCREW MACHINE PRODUCTS		
United States -----	686.7	598.4	—Con.		
California -----	26.2	11.2	Oregon -----	12.4	3.2
Connecticut -----	26.5	28.7	Pennsylvania -----	51.0	57.8
Illinois -----	102.4	109.2	Rhode Island -----	15.1	8.7
Indiana -----	19.2	17.1	South Carolina -----	3.5	(AA)
Massachusetts -----	12.1	10.1	Tennessee -----	20.9	5.1
Michigan -----	283.2	253.7			
Missouri -----	18.1	9.8	Texas -----	14.1	12.3
New Jersey -----	10.4	5.1	Washington -----	2.1	(AA)
New York -----	26.2	28.1	Wisconsin -----	39.2	40.8
Ohio -----	67.5	66.7			
Pennsylvania -----	21.5	9.7			
Tennessee -----	6.3	4.8	34524, EXTERNALLY THREADED		
Texas -----	3.8	(AA)	FASTENERS, EXCEPT AIRCRAFT		
Wisconsin -----	10.6	9.2			
34512, OTHER SCREW MACHINE PRODUCTS			United States -----	1 451.0	1 451.2
United States -----	1 245.3	958.6	Alabama -----	33.0	29.2
Arizona -----	4.7	1.7	California -----	41.6	39.3
California -----	91.0	65.0	Colorado -----	9.3	(BB)
Colorado -----	2.0	4.0	Connecticut -----	46.4	59.9
Connecticut -----	99.8	73.2	Illinois -----	412.3	388.4
Florida -----	13.5	9.2			
Illinois -----	190.7	139.1	Indiana -----	22.7	40.4
Indiana -----	51.6	49.4	Kentucky -----	75.3	52.3
Iowa -----	8.8	7.7	Massachusetts -----	51.1	45.6
Kentucky -----	5.6	(AA)	Michigan -----	141.7	168.7
Massachusetts -----	59.7	51.5	Missouri -----	18.7	(FF)
Michigan -----	119.4	126.1			
Minnesota -----	38.9	21.2	New Jersey -----	21.2	8.4
Missouri -----	30.7	24.2	New York -----	22.2	14.7
Nebraska -----	6.1	3.7	Ohio -----	181.3	234.4
New Hampshire -----	6.6	1.7	Pennsylvania -----	155.8	149.4
New Jersey -----	73.0	48.3	Rhode Island -----	28.4	23.8
New York -----	103.6	53.7			
North Carolina -----	3.5	(BB)	Texas -----	52.7	25.2
Ohio -----	146.6	128.8	Virginia -----	34.5	39.5
Oklahoma -----	9.3	(BB)	Wisconsin -----	2.2	(AA)

See footnotes at end of table.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
34525, INTERNALLY THREADED FASTENERS, EXCEPT AIRCRAFT			34635, HOT IMPRESSION DIE IMPACT, PRESS, AND UPSET NONFERROUS FORGINGS		
United States	408.6	412.6	United States	1 011.2	468.1
California	33.3	13.8	California	268.5	89.2
Connecticut	17.1	13.8	Connecticut	35.7	18.6
Illinois	44.9	61.1	Illinois	11.4	(CC)
Indiana	26.7	(FF)	Ohio	235.4	(GG)
Massachusetts	10.7	7.2			
Michigan	71.6	98.5	34639, OTHER NONFERROUS FORGINGS		
New Jersey	40.3	39.3	United States	193.7	(NA)
New York	5.8	11.7	California	93.6	(NA)
Ohio	51.7	60.3	Michigan	17.1	(NA)
Pennsylvania	57.5	53.5			
Rhode Island	4.5	(BB)			
Texas	4.9	(AA)	34661, METAL COMMERCIAL CLOSURES AND METAL HOME CANNING CLOSURES		
Wisconsin	5.8	(AA)	United States	627.1	470.7
34526, NONTHREADED FASTENERS, EXCEPT AIRCRAFT			California	60.8	44.6
United States	526.2	517.2	Illinois	161.5	110.7
California	33.6	28.5	Indiana	104.7	108.1
Connecticut	60.9	49.1	New York	23.6	22.1
Florida	29.5	(BB)	Pennsylvania	160.7	98.6
Illinois	62.8	85.4			
Indiana	3.7	5.4	34692, JOB STAMPINGS, EXCEPT AUTOMOTIVE		
Massachusetts	26.9	21.9	United States	2 908.9	2 199.3
Michigan	23.0	34.3	Alabama	36.3	(FF)
Minnesota	11.1	4.0	Arizona	10.8	(BB)
New Jersey	44.7	37.5	California	179.5	153.8
New York	63.5	45.2	Colorado	4.7	2.0
Ohio	40.1	55.8	Connecticut	173.3	94.8
Pennsylvania	41.9	74.4	Florida	21.4	5.2
Rhode Island	2.0	2.6	Georgia	16.9	3.9
Wisconsin	41.3	41.5	Illinois	517.9	424.4
34527, AIRCRAFT AEROSPACE FASTENERS			Indiana	64.1	73.2
United States	516.7	237.9	Iowa	17.4	13.4
California	402.7	173.6	Kentucky	35.6	44.3
Connecticut	13.0	3.8	Massachusetts	233.8	75.4
Michigan	2.2	3.2	Michigan	111.7	108.2
Texas	3.3	(BB)	Minnesota	115.1	82.0
34528, OTHER FORMED PARTS, MADE ON FASTENER MACHINES			Mississippi	6.1	(BB)
United States	329.9	284.6	Missouri	44.0	30.3
California	36.3	36.9	New Hampshire	8.7	3.8
Connecticut	17.9	5.2	New Jersey	148.4	129.4
Illinois	30.7	38.7	New York	157.4	157.6
Massachusetts	23.1	(FF)	North Carolina	40.6	14.6
Michigan	78.9	74.4	Ohio	388.6	352.3
New Jersey	7.5	(AA)	Oregon	8.7	9.1
New York	14.6	3.5	Pennsylvania	206.5	143.1
Ohio	41.5	37.8	Rhode Island	15.0	12.8
Pennsylvania	29.4	17.3	South Carolina	3.3	(BB)
Texas	8.4	(BB)	Tennessee	28.2	27.0
34625, HOT IMPRESSION DIE IMPACT, PRESS, AND UPSET STEEL FORGINGS			Texas	37.7	9.4
United States	2 265.5	2 155.4	Wisconsin	207.1	160.6
California	83.4	48.1	34694, STAMPED AND SPUN COOKING UTENSILS, ALUMINUM		
Connecticut	22.0	25.0	United States	508.2	330.1
Illinois	267.5	363.9	Illinois	25.7	16.5
Indiana	116.1	116.1	Indiana	20.5	(CC)
Michigan	190.0	298.8	New York	51.1	6.3
New York	132.1	121.3	Ohio	115.6	(GG)
Ohio	410.2	434.4	Wisconsin	149.8	115.9
Pennsylvania	136.4	136.4			
Tennessee	30.7	19.1	34695, STAMPED AND SPUN COOKING UTENSILS, EXCEPT ALUMINUM		
Texas	275.1	203.6	United States	367.7	385.4
Wisconsin	175.6	162.6	Illinois	107.9	103.9
34626, COLD IMPRESSION DIE IMPACT, PRESS, AND UPSET STEEL FORGINGS			New Jersey	16.5	10.2
United States	219.8	215.7	Pennsylvania	15.1	27.3
Michigan	94.9	89.7	Wisconsin	100.9	60.4
Ohio	83.3	118.9			
Pennsylvania	3.6	(AA)			

See footnotes at end of table.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
34699, OTHER STAMPED AND PRESSED METAL END PRODUCTS			34699, OTHER STAMPED AND PRESSED METAL END PRODUCTS—Con.		
United States	1 584.8	1 073.0	Missouri	57.6	31.5
Alabama	13.2	13.2	New Hampshire	4.7	(CC)
Arizona	17.7	5.5	New Jersey	79.0	54.2
Arkansas	39.0	(FF)	New York	116.3	45.2
California	223.9	123.6	North Carolina	18.9	(AA)
Colorado	16.5	5.6	Ohio	119.8	90.0
Connecticut	73.3	68.4	Oklahoma	13.3	(BB)
Florida	25.8	25.7	Oregon	9.6	(BB)
Georgia	25.0	8.8	Pennsylvania	151.2	55.9
Illinois	141.9	100.4	Rhode Island	14.4	14.7
Indiana	25.9	7.3	Tennessee	57.3	48.6
Kentucky	19.4	25.2	Texas	29.0	15.6
Maryland	9.6	9.2	West Virginia	16.7	(EE)
Massachusetts	68.1	64.9	Wisconsin	31.1	45.7
Michigan	34.6	47.5			
Minnesota	33.4	18.5			

Note: For 1977, the following value ranges (in million dollars) substitute for actual figures withheld to avoid disclosing data for individual companies: AA—less than \$2.0 but not 0; BB—\$2.0 to \$4.9; CC—\$5.0 to \$9.9; EE—\$10.0 to \$19.9; FF—\$20.0 to \$49.9; GG—\$50.0 or more.

Table 6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Product class	1982	1981 ¹	1980 ¹	1979 ¹	1978 ¹	1977	1972	1967
3451-	Screw machine products	2 159.7	2 423.2	2 421.1	2 440.9	2 102.7	1 771.4	1 083.1	1 036.1
34511	Automotive screw machine products	686.7	831.0	847.6	840.6	680.6	598.4	245.7	(NA)
34512	Other screw machine products	1 245.3	1 365.2	1 374.0	1 400.0	1 201.8	958.6	638.7	(NA)
34510	Screw machine products, n.s.k.	227.8	227.0	199.5	200.3	(S)	214.4	198.7	(NA)
3452-	Bolts, nuts, rivets, and washers	3 401.0	4 277.4	4 107.6	4 133.9	3 564.4	3 130.3	1 988.4	1 613.1
34524	Externally threaded fasteners, except aircraft	1 451.0	1 849.4	1 834.7	1 907.8	1 617.4	1 451.2	979.5	(NA)
34525	Internally threaded fasteners, except aircraft	408.6	503.2	491.5	532.8	453.8	412.6	248.5	(NA)
34526	Nonthreaded fasteners, except aircraft	526.2	705.3	681.6	737.1	602.7	517.2	353.2	(NA)
34527	Aircraft aerospace fasteners	516.7	780.3	715.3	488.8	350.7	237.9	157.8	(NA)
34528	Other formed parts, made on fastener machines	329.9	304.0	278.4	370.2	315.9	284.6	140.3	195.9
34520	Bolts, nuts, rivets, and washers, n.s.k.	168.5	135.2	106.2	97.1	(S)	226.8	109.1	71.8
3482-	Iron and steel forgings	3 161.3	4 110.3	3 703.7	3 731.3	3 385.5	2 966.7	1 572.6	(NA)
34825	Hot impression die impact, press, and upset steel forgings	2 265.5	2 937.3	2 672.4	2 764.9	2 549.9	2 155.4	(NA)	(NA)
34826	Cold impression die impact, press, and upset steel forgings	219.8	245.4	201.2	257.6	271.0	215.7	(NA)	(NA)
34827	Seamless rolled ring forgings, ferrous, made in plants not producing steel (also see code 3312A)	591.9	272.2	227.9	172.3	143.1	113.8	(NA)	(NA)
34828	Open die or smith forgings, hammer or press, ferrous, made in plants not producing steel (also see code 3312B)	84.1	579.1	540.0	487.7	358.6	384.7	(NA)	(NA)
34820	Iron and steel forgings, n.s.k.	84.1	76.3	62.2	48.8	62.9	97.1	(NA)	(NA)
3463-	Nonferrous forgings	1 210.9	1 254.9	1 107.9	863.8	681.9	540.4	280.8	348.1
34635	Hot impression die impact, press, and upset nonferrous forgings	1 011.2	983.8	855.8	712.1	572.0	468.1	(NA)	(NA)
34639	Other nonferrous forgings	193.7	247.9	233.8	135.8	(NA)	61.2	(NA)	(NA)
34630	Nonferrous forgings, n.s.k.	6.0	23.2	18.3	15.9	-	11.1	(NA)	(NA)
34650	Automotive job stampings	9 041.2	8 896.2	8 326.1	10 292.4	10 662.7	9 599.8	5 155.8	3 178.2
3466-	Crowns and closures	790.2	695.5	638.0	651.9	599.2	581.0	339.4	290.0
34661	Metal commercial closures and metal home canning closures	627.1	564.0	483.8	512.4	469.2	470.7	274.6	204.6
34662	Metal crowns	145.0	120.8	147.0	132.6	124.8	104.8	64.8	85.4
34660	Crowns and closures, n.s.k.	18.1	10.7	7.3	7.0	(S)	5.6	-	-
3469-	Metal stampings, n.e.c.	8 172.3	6 839.0	6 402.8	6 012.6	5 067.1	4 554.5	2 614.9	2 057.0
34692	Job stampings, except automotive	2 908.9	3 478.5	3 329.8	3 186.0	2 521.5	2 199.3	1 283.1	1 076.9
34694	Stamped and spun cooking utensils, aluminum	508.2	418.6	410.4	403.0	360.8	330.1	205.0	148.2
34695	Stamped and spun cooking utensils, except aluminum	367.7	428.3	388.9	412.1	423.2	385.4	184.4	141.6
34699	Other stamped and pressed metal end products	1 584.8	1 937.0	1 714.8	1 487.0	1 204.7	1 073.0	588.4	444.2
34690	Metal stampings, n.e.c., n.s.k.	802.6	576.6	558.9	524.5	(S)	566.7	354.0	246.1
34710	Electroplating, plating, and polishing	2 680.3	2 544.6	2 461.4	2 330.2	2 151.4	1 775.1	993.4	756.1
34790	Coating, engraving, and allied services	2 405.2	2 486.7	2 178.7	2 039.9	1 746.6	1 520.5	682.0	404.3

¹Figures are estimates derived from a representative sample of manufacturing establishments canvassed in annual survey of manufactures and, therefore, may differ from results that would be obtained from a complete canvass of all manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures volumes for this period.

Table 7. Materials Consumed by Kind: 1982 and 1977

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3451, SCREW MACHINE PRODUCTS				
	Materials, parts, containers, and supplies -----	(X)	671.4	(X)	619.2
	Mill shapes and forms, except castings:				
	Carbon steel:				
331011	Bar and bar shapes ----- 1,000 s tons..	**191.5	190.1	**301.9	171.8
331012	Sheet and strip ----- do..	*7.8	4.9	*16.0	6.2
331013	Plates ----- do..	(³)	(³)	(S)	.1
331017	Wire and wire products ----- do..	(S)	45.4	49.8	23.9
331058	All other ----- do..	*1.9	*3.3	(S)	4.9
	Alloy steel, except stainless:				
331021	Bar and bar shapes ----- do..	(S)	25.4	*24.7	20.7
331029	All other ----- do..	*5.7	11.3	*8.2	5.1
	Stainless steel mill shapes and forms:				
331033	Sheet and strip ----- do..	**2	1.1	1.3	2.8
331049	Bars and bar shapes ----- do..	(S)	26.6	(⁴)	(⁴)
331052	All other ----- do..	*1.9	4.5	**411.6	*26.3
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ----- mil lb..	(S)	3.0	(S)	2.0
335103	Rod, bar, and bar shapes ----- do..	74.3	57.7	(⁵)	(⁵)
335104	Mechanical wire (including extruded and/or drawn shapes ----- do..	(S)	.9	⁵ 99.3	⁵ 68.6
335143	Plate, sheet, and strip, including military cups and discs ----- do..	.3	.3	2.7	2.6
335152	Pipe and tube ----- do..			1.1	.7
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ----- do..	(S)	.9	(S)	.4
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc ----- do..	(S)	14.2	**15.9	15.0
335008	All other (wire, rolled rod and bar, powder, welded tubing, etc.) ----- do..	(S)	5.7	*8.5	6.8
335616	Nickel and nickel-base alloy ----- do..	(S)	.4	(S)	.8
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased ----- 1,000 s tons..	2.3	2.2	**1.4	1.2
	Produced and consumed ----- do..	.3	(X)	(X)	(X)
332045	Steel:				
	Purchased ----- do..	*.3	.7	(D)	(⁶)
	Produced and consumed ----- do..	(Z)	(X)	(X)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ----- mil lb..	**1.5	1.5	(D)	(⁶)
	Produced and consumed ----- do..	-	(X)	(X)	(X)
336200	Copper and copper-base alloy:				
	Purchased ----- do..	(S)	.2	(D)	(⁶)
	Produced and consumed ----- do..	-	(X)	(X)	(X)
336902	Other nonferrous:				
	Purchased ----- do..	(S)	.4	(D)	(⁶)
	Produced and consumed ----- do..	-	(X)	(S)	(X)
	Iron and steel forgings:				
346201	Cold ----- 1,000 s tons..	(D)	(7)	(S)	5.4
346209	Other ----- do..	(S)	.2	(D)	(⁶)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. but excluding sheets, rods, tubes, and shapes ----- mil lb..	(S)	.4	**4	.2
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes ----- do..	(X)	1.3	(X)	1.2
265001	Paperboard boxes, containers, and corrugated paperboard ----- do..	(X)	3.1	(X)	2.9
354401	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools ----- do..	(X)	12.2	(X)	6.5
970099	All other materials and components, parts, containers, and supplies ----- do..	(X)	786.8	(X)	⁶ 62.1
971000	Materials, parts, containers, and supplies, n.s.k. ² ----- do..	(X)	166.7	(X)	181.0
	INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS				
	Materials, parts, containers, and supplies -----	(X)	1 262.2	(X)	1 229.9
	Mill shapes and forms, except castings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons..	**401.8	251.0	*336.7	129.2
331012	Sheet and strip ----- do..	190.5	92.2	220.5	81.3
331013	Plates ----- do..	4.1	1.5	22.2	5.7
331017	Wire and wire products ----- do..	**381.3	249.5	612.0	295.7
331058	All other ----- do..	61.8	24.1	*240.6	84.3
	Alloy steel, except stainless:				
331021	Bars and bar shapes ----- do..	**63.9	43.3	*74.3	41.9
331029	All other ----- do..	*53.0	54.4	163.6	72.1
	Stainless steel mill shapes and forms:				
331049	Bars and bar shapes ----- do..	(S)	21.5	(⁴)	(⁴)
331033	Sheet and strip ----- do..	*6.3	13.4	*4.7	11.6
331052	All other ----- do..	**13.7	34.1	*20.0	*44.3
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ----- mil lb..	*101.9	2.2	(NA)	(⁸)
335103	Rod, bar, and bar shapes ----- do..	18.3	11.3		
335104	Mechanical wire (including extruded and/or drawn shapes) ----- do..	(S)	9.7	25.3	26.6
335143	Plate, sheet, and strip, including military cups and discs ----- do..	17.6	25.6	**13.2	16.4
335152	Pipe and tube ----- do..	(Z)	(Z)	(NA)	(⁸)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ----- do..	(S)	2.8	2.2	2.0
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ----- do..	*7.1	7.6	3.0	3.0
335008	All other wire, rolled rod and bar, powder, welded tubing, etc. ----- do..	(S)	24.9	13.7	14.8
335616	Nickel and nickel-base alloy ----- do..	4.4	13.3	*2.2	8.3

See footnotes at end of table.

Table 7. **Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3452, BOLTS, NUTS, RIVETS, AND WASHERS—Con.				
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased ----- 1,000 s tons--	*1.9	2.0	6.3	5.5
	Produced and consumed ----- do--	-	(X)	(X)	(X)
332045	Steel:				
	Purchased ----- do--	.3	1.3	(S)	1.6
	Produced and consumed ----- do--	-	(X)	(X)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ----- mil lb--	(S)	1.2	(X)	(⁸)
	Produced and consumed ----- do--	(Z)	(X)	(X)	(X)
336200	Copper and copper-base alloy:				
	Purchased ----- do--	(S)	.2	(X)	(⁸)
	Produced and consumed ----- do--	-	(X)	(X)	(X)
336902	Other nonferrous:				
	Purchased ----- do--	(S)	4.9	(X)	(⁸)
	Produced and consumed ----- do--	.3	(X)	(X)	(X)
346201	Iron and steel forgings:				
	Cold ----- 1,000 s tons--	(X)	(⁹)	(NA)	(⁹)
346209	Other ----- do--	(X)	(⁹)	3.1	3.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc. but excluding sheets, rods, tubes, and shapes ----- mil lb--	**4.7	6.3	1.5	2.1
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes -----	(X)	4.5	(X)	2.0
265001	Paperboard boxes, containers, and corrugated paperboard -----	(X)	10.8	(X)	13.9
354401	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools -----	(X)	39.2	(X)	47.6
970099	All other materials and components, parts, containers, and supplies -----	(X)	⁹ 221.3	(X)	⁸ 197.1
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	88.1	(X)	119.4
	INDUSTRY 3462, IRON AND STEEL FORGINGS				
	Materials, parts, containers, and supplies -----	(X)	1 245.1	(X)	1 297.7
	Iron and steel forgings:				
346201	Cold ----- 1,000 s tons--	(S)	3.2	(S)	10.5
346209	Other ----- do--	**174.0	13.4	(S)	7.8
	Carbon steel:				
331041	Ingots ----- do--	(S)	49.1	(¹⁰)	(¹⁰)
331042	Blooms, billets, and slabs ----- do--	*206.4	98.2	¹⁰ 480.1	¹⁰ 163.4
331043	Bars ----- do--	486.5	291.0	1 009.6	358.0
	Alloy steel, except stainless:				
331044	Ingots ----- do--	**30.8	25.1	(¹¹)	(¹¹)
331045	Blooms, billets, and slabs ----- do--	203.0	166.0	¹¹ 298.0	¹¹ 158.0
331046	Bars ----- do--	373.1	225.3	481.9	236.0
	Stainless steel:				
331047	Ingots ----- do--	(D)	(D)	(¹²)	(¹²)
331048	Blooms, billets, and slabs ----- do--	13.0	21.4	¹² 10.7	¹² 16.3
331049	Bars ----- do--	**8.2	19.4	12.8	18.9
	Aluminum and aluminum-base alloy:				
333471	Ingots ----- do--	.2	.4	(D)	(D)
335001	Mill shapes ----- mil lb--	(S)	.6	1.2	1.3
	Titanium and titanium-base alloy:				
335627	Ingots ----- do--	(S)	80.3	9.2	27.2
335628	Mill shapes ----- do--	(S)	.7	.7	3.8
	Nonferrous forging stock:				
335107	Copper and copper-base alloy ----- do--	1.2	2.7	(S)	.4
335690	Nickel and nickel-base alloy (including nickel-copper alloys) ----- do--	*1.8	7.3	(X)	(¹³)
335618	Other nonferrous ----- do--	3.2	1.6	(X)	(¹³)
346310	Aluminum forgings, including impact extrusions ----- 1,000 s tons--	(D)	(D)	(D)	(D)
354411	Forging dies ----- mil lb--	(S)	12.7	(X)	(¹³)
970099	All other materials and components, parts, containers, and supplies -----	(X)	126.6	(X)	¹³ 171.8
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	98.2	(X)	121.4
	INDUSTRY 3463, NONFERROUS FORGINGS				
	Materials, parts, containers, and supplies -----	(X)	477.4	(X)	198.8
	Iron and steel forgings:				
346201	Cold ----- 1,000 s tons--	-	-	-	-
346209	Other ----- do--	(D)	(D)	(D)	(D)
	Carbon steel:				
331041	Ingots ----- do--	(S)	8.7	.3	.2
331042	Blooms, billets, and slabs ----- do--	(S)	8.7	.3	.2
331043	Bars ----- do--	(S)	8.7	.3	.2
	Alloy steel, except stainless:				
331044	Ingots ----- do--	(D)	(D)	-	-
331045	Blooms, billets, and slabs ----- do--	36.2	30.9	6.7	15.4
331046	Bars ----- do--	2.6	3.8	6.7	15.4
	Stainless steel:				
331047	Ingots ----- do--	-	-	-	-
331048	Blooms, billets, and slabs ----- do--	**3.0	3.0	1.3	3.3
331049	Bars ----- do--	1.1	4.7	1.3	3.3
	Aluminum and aluminum-base alloy:				
333471	Ingots ----- do--	(D)	(D)	(D)	(D)
335001	Mill shapes ----- mil lb--	24.8	26.9	(D)	(D)
	Titanium and titanium-base alloy:				
335627	Ingots ----- do--	6.8	81.3	**6.3	21.3
335628	Mill shapes ----- do--	(S)	51.4	(S)	29.5

See footnotes at end of table.

Table 7. **Materials Consumed by Kind: 1982 and 1977—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3463, NONFERROUS FORGINGS—Con.				
	Nonferrous forging stock:				
335107	Copper and copper-base ----- mil lb..	36.6	32.0	18.0	12.8
335690	Nickel and nickel-base alloy (including nickel-copper alloy) ----- do..	3.8 (S)	29.8 8.1 (D)	(X)	(13) (13) (D)
335618	Other nonferrous ----- do..	(D)	(D)	(X)	(13)
346310	Aluminum forgings, including impact extrusions ----- 1,000 s tons..	*.9	.8	(X)	(13)
354411	Forging dies ----- mil lb..	(X)	64.0	(X)	¹³ 29.8
970099	All other materials and components, parts, containers, and supplies -----	(X)	6.5	(X)	9.5
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)		(X)	
	INDUSTRY 3465, AUTOMOTIVE STAMPINGS				
	Materials, parts, containers, and supplies -----	(X)	4 276.1	(X)	4 862.3
	Mill shapes and forms, except castings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons..	*254.7	157.7	404.1	137.2
331012	Sheet and strip ----- do..	*4 790.9	2 704.0	8 911.7	3 142.8
331013	Plates ----- do..	**17.8	7.8	42.2	16.1
331015	Structural shapes ----- do..	(S)	5.1	(S)	9.2
331017	Wire and wire products ----- do..	30.3	10.0	47.3	21.5
331018	Tin plate, tin free steel, terneplate, and blackplate ----- do..	13.9	12.5	**56.7	22.8
331083	All other ----- do..	55.2	37.1	**103.0	41.6
	Alloy steel, except stainless:				
331021	Bars and bar shapes ----- do..	(S)	11.5	(S)	7.6
331029	All other ----- do..	(S)	140.9	250.6	109.0
	Stainless steel:				
331033	Sheet and strip ----- do..			54.2	93.1
331050	All other ----- do..	41.9	92.8	(S)	22.2
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ----- mil lb..			(S)	.2
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ----- do..	(S)	.6		(14)
335143	Plate, sheet, and strip, including military cups and discs ----- do..	**11.0	11.4	*6.5	8.4
335152	Pipe and tube ----- do..	(S)	.8	(S)	5.4
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ----- do..	(S)	98.7	**120.6	115.4
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ----- do..	(S)	27.5	*11.4	17.7
335008	All other wire, rolled rod and bar, powder, welded tubing, etc. ----- do..	**3.7	2.1	(S)	5.9
333348	Zinc and zinc-base alloy refinery shapes ----- 1,000 s tons..	(D)	(15)	(S)	27.9
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased ----- do..	(D)	(15)	(NA)	(14)
	Produced and consumed ----- do..	(Z)	(X)	(X)	(X)
332045	Steel:				
	Purchased ----- do..	(S)	.8	(X)	(14)
	Produced and consumed ----- do..	(Z)	(X)	(X)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ----- mil lb..	*.6	1.0	*.2	.3
	Produced and consumed ----- do..	-	(X)	(X)	(X)
336200	Copper and copper-base alloy:				
	Purchased ----- do..	(D)	(15)	(NA)	(14)
	Produced and consumed ----- do..	-	(X)	(X)	(X)
336902	Other nonferrous:				
	Purchased ----- do..	**8.5	8.4	(X)	(14)
	Produced and consumed ----- do..	-	(X)	(X)	(X)
341151	Lids, ends, and parts for metal cans ----- do..	(X)	(15)	(X)	(14)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes ----- mil lb..	*28.9	13.3	(S)	11.4
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes ----- do..	(X)	36.5	(X)	23.9
265001	Paperboard boxes, containers, and corrugated paperboard ----- do..	(X)	26.8	(X)	32.2
260003	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard ----- do..	(X)	6.8	(X)	4.3
285101	Paints, varnishes, lacquers, shellacs, japans, enamels, and allied products ----- 1,000 gal..	(S)	21.7	(X)	21.5
345001	Bolts, nuts, screws, rivets, washers, and screw machine products ----- do..	(X)	69.5	(X)	67.7
354401	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools ----- do..	(X)	55.7	(X)	55.8
970099	All other materials and components, parts, containers, and supplies -----	(X)	¹⁵ 554.6	(X)	¹⁴ 676.4
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	160.5	(X)	164.8
	INDUSTRY 3466, CROWNS AND CLOSURES				
	Materials, parts, containers, and supplies -----	(X)	419.3	(X)	266.1
	Mill shapes and forms, except castings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons..	(S)	31.1	(NA)	(16)
331012	Sheet and strip ----- do..	-	-	*21.7	9.4
331013	Plates ----- do..	-	-	-	-
331015	Structural shapes ----- do..	-	-	-	-
331017	Wire and wire products ----- do..	-	-	(NA)	(16)
331018	Tin plate, tin free steel, terneplate, blackplate ----- do..	192.6	126.3	**234.6	113.0
331083	All other ----- do..	-	-	-	-
	Alloy steel, except stainless:				
331021	Bars and bar shapes ----- do..	-	-	(S)	.2
331029	All other ----- do..	-	-	-	-

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3466, CROWNS AND CLOSURES—				
	Con.				
	Mill shapes and forms, except castings — Con.				
	Stainless steel:				
331033	Sheet and strip ----- 1,000 s tons..	-	-	(NA)	(¹⁶)
331050	All other ----- do..	(D)	(¹⁷)	-	-
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ----- mil lb..	-	(Z)	-	-
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ----- do..	-	-	-	-
335143	Plate, sheet, and strip, including military cups and discs ----- do..	-	-	-	-
335152	Pipe and tube ----- do..	(Z)	(Z)	-	-
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ----- do..	71.3	106.5	*51.1	39.3
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ----- do..	(Z)	(Z)	(NA)	(¹⁶)
335008	All other wire, rolled rod and bar, powder, welded tubing, etc. ----- do..	-	-	-	-
333348	Zinc and zinc-base alloy refinery shapes ----- 1,000 s tons..	-	-	(NA)	(¹⁶)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased ----- do..	(D)	(¹⁷)	(NA)	(¹⁸)
	Produced and consumed ----- do..	.2	(X)	(X)	(X)
332045	Steel:				
	Purchased ----- do..	-	-	(X)	(¹⁶)
	Produced and consumed ----- do..	-	(X)	(X)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ----- mil lb..	-	-	-	-
	Produced and consumed ----- do..	-	(X)	(X)	(X)
336200	Copper and copper-base alloy:				
	Purchased ----- do..	-	-	-	-
	Produced and consumed ----- do..	-	(X)	(X)	(X)
336902	Other nonferrous:				
	Purchased ----- do..	-	-	(X)	(¹⁶)
	Produced and consumed ----- do..	-	(X)	(X)	(X)
341151	Lids, ends, and parts for metal cans -----	-	-	(NA)	(NA)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes ----- mil lb..	33.9	19.8	*62.1	24.7
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes -----	(X)	8.8	(X)	2.9
265001	Paperboard boxes, containers, and corrugated paperboard -----	(X)	9.6	(X)	9.1
260003	Paper and paperboard products, except paperboard boxes, containers, and corrugated paperboard -----	(X)	9.5	(X)	10.8
285101	Paints, varnishes, lacquers, shellacs, japans, enamels, and allied products -----	(X)	23.2	(X)	11.3
345001	Bolts, nuts, screws, rivets, and screw machine products -----	(X)	(Z)	(X)	.3
354401	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools -----	(X)	4.0	(X)	.6
970099	All other materials and components, parts, containers, and supplies -----	(X)	1765.3	(X)	1640.0
971000	Material, parts, containers, and supplies, n.s.k. ² -----	(X)	15.1	(X)	4.5
	INDUSTRY 3469, METAL STAMPINGS, N.E.C.				
	Materials, parts, containers and supplies -----	(X)	2 572.6	(X)	2 030.9
	Mill shapes and forms, except castings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons..	(S)	28.2	(S)	32.1
331012	Sheet and strip ----- do..	**1 203.5	654.2	**1 462.3	543.7
331013	Plates ----- do..	**45.9	20.2	(S)	23.8
331015	Structural shapes ----- do..	(S)	13.8	(S)	7.1
331017	Wire and wire products ----- do..	(S)	12.2	(S)	12.0
331018	Tin plate, tin free steel, terneplate, and blackplate ----- do..	*129.7	109.8	*81.2	37.6
331083	All other ----- do..	53.5	44.6	(S)	43.5
	Steel, except stainless:				
331021	Bars and bar shapes ----- do..	(S)	9.6	(S)	7.4
331029	All other ----- do..	(S)	75.4	(S)	51.4
	Stainless steel:				
331033	Sheet and strip ----- do..	(S)	117.2	*53.2	99.7
331050	All other ----- do..	(S)	28.8	**9.2	22.1
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ----- mil lb..	(S)	5.1	*.2	.2
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ----- do..	(S)	6.2	(S)	4.8
335143	Plate, sheet, and strip, including military cups and discs ----- do..	(S)	94.0	**49.5	65.3
335152	Pipe and tube ----- do..	(S)		2.6	3.1
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ----- do..	(S)	207.2	**203.8	172.5
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ----- do..	(S)	10.2	(S)	5.2
335008	All other wire, rolled rod and bar, powder, welded tubing, etc. ----- do..	(S)	10.4	(S)	7.8
333348	Zinc and zinc-base alloy refinery shapes ----- 1,000 s tons..	**8	.6	(S)	3.1
	Castings (rough and semifinished):				
332011	Iron (gray and malleable):				
	Purchased ----- do..	(S)	4.9	(S)	3.1
	Produced and consumed ----- do..	11.6	(X)	(X)	(X)
332045	Steel:				
	Purchased ----- do..	(S)	10.3	(X)	(¹⁸)
	Produced and consumed ----- do..	16.4	(X)	(X)	(X)
336100	Aluminum and aluminum-base alloy:				
	Purchased ----- mil lb..	(S)	15.5	5.4	6.4
	Produced and consumed ----- do..	(D)	(X)	(X)	(X)
336200	Copper and copper-base alloy:				
	Purchased ----- do..	(D)	(¹⁹)	1.7	1.7
	Produced and consumed ----- do..	-	(X)	(X)	(X)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3469, METAL STAMPINGS, N.E.C.— Con.				
336902	Castings (rough and semifinished):—Con.				
	Other nonferrous:				
	Purchased mil lb..	(S)	11.2	(X)	(¹⁸)
	Produced and consumed do..	(Z)	(X)	(X)	(X)
341151	Lids, ends, and parts for metal cans	-	.8	(X)	.5
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes mil lb..	(S)	11.7	(S)	5.9
307903	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	34.7	(X)	26.1
265001	Paperboard boxes and containers	(X)	42.1	(X)	37.8
260003	Paper and paperboard products, except paperboard boxes, and containers	(X)	5.7	(X)	5.7
285101	Paints, varnishes, lacquers, shellacs, japans, and enamels	(X)	33.9	(X)	18.9
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	28.6	(X)	25.6
354401	Special dies, tools, die sets, jigs, and fixtures, except cutting tools for machine tools	(X)	18.6	(X)	16.4
970099	All other materials and components, parts, containers, and supplies	(X)	¹⁹ 390.8	(X)	¹⁸ 337.6
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	516.1	(X)	402.8
	INDUSTRY 3471, PLATING AND POLISHING				
	Materials, parts, containers, and supplies	(X)	822.7	(X)	538.1
289900	Foundry chemicals, metal treating compounds, and plating compounds	(X)	322.0	(X)	168.1
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	12.0	(X)	9.9
331000	Steel mill shapes and forms, except castings 1,000 s tons..	^{**} 46.4	17.9	(S)	26.2
970099	All other materials and compounds, parts, containers, and supplies	(X)	199.0	(X)	123.1
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	271.8	(X)	210.8
	INDUSTRY 3479, METAL COATING AND ALLIED SERVICES				
	Materials, parts, containers, and supplies	(X)	1 045.2	(X)	742.6
289900	Foundry chemicals, metal compounds, and plating compounds	(X)	221.1	(X)	70.4
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	4.1	(X)	1.3
331000	Steel mill shapes and forms, except castings 1,000 s tons..	(S)	212.2	[*] 926.4	236.6
970099	All other materials and compounds, parts, containers, and supplies	(X)	499.2	(X)	280.2
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	108.6	(X)	154.1

¹For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

³For 1982, material code 331013 is included with material code 3310158.

⁴For 1977, material code 331049 was included with material code 331052.

⁵For 1977, material code 335103 was included with material code 335104.

⁶For 1977, material codes 332045, 336100, 336200, 336902, and 346209 were combined with material code 970099.

⁷For 1982, material code 346201 is included with material code 970099.

⁸For 1977, material codes 335728, 335152, 336100, 336200, 336902, and 346201 were combined with material code 970099.

⁹For 1982, material codes 346201 and 346209 are combined with material code 970099.

¹⁰For 1977, material code 331041 was included with material code 331042.

¹¹For 1977, material code 331044 was included with material code 331045.

¹²For 1977, material code 331047 was included with material code 331048.

¹³For 1977, material codes 335690, 335618, and 354411 were combined with material code 970099.

¹⁴For 1977, material codes 335102, 332011, 336200, 341151, 332045, and 336902 were combined with material code 970099.

¹⁵For 1982, material codes 333348, 332011, 336200, and 341151 were combined with material code 970099 to avoid disclosing data for individual companies.

¹⁶For 1977, material codes 331011, 331017, 331033, 335405, 333348, 332011, 332045, and 336902 were combined with material code 970099.

¹⁷For 1982, material codes 331050 and 332011 were combined with material code 970099.

¹⁸For 1977, material codes 332045 and 336902 were combined with material code 970099.

¹⁹For 1982, material code 336200 is combined with material code 970099.

APPENDIX A.

Explanation of Terms

This appendix is in two sections. Section 1 includes items which were requested of all establishments that were mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) that were not included on the report forms but were derived from information collected on the forms. Section 2 covers supplementary items that were requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in tables 3c and 3d of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operates at different physical locations, even if the individual locations are producing the same line of goods, a separate report was requested for each location. If the company operates in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on the number of custodial employees, capital expenditures, inventories, or any shipments from inventories during the portion of the year the plant was in operation.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction to Part 1 of the General Summary subject report.

Employment and related items—The regular report forms requested separate information on production workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period ending nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment who are engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls was also requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the general summary and geographic area reports and in the final bound volumes as a separate category.

Payrolls—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1982. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers

of corporations, but excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed—In addition to the total cost of materials, which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the specific materials consumed is shown in table 7 if appropriate to the industry. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the Introduction for the importance of administrative records in the industry.)

Value of shipments—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further

processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products—As in previous censuses, data were collected for almost all industries on the quantity and value of individual products shipped. In the 1982 census program, information was collected on the output of approximately 11,000 individual product items. The term "product," as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 items; whereas, "motor gasoline" was reported as a single item.

Approximately 6,000 of the product items were listed separately on the 1982 census report forms. Data for about 5,000 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1982 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a) together with the tieline total value collected in the census for reconciliation purposes.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1977 information is presented for most products.

Typically, both quantity and value of shipments information was collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers was also collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production was also collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the

individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1982 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments—The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. With some important exceptions, such as for motor vehicles and parts, this duplication is not significant at the four-digit industry level. However, it is significant at the two-digit and three-digit industry group level because these totals often include industries that represent successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the "Food" group and the addition of pulp mills to paper mills in the "Paper and Allied Products" group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the census of manufactures.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

Because of the change in instructions for reporting inventories for 1982, the 1982 figure for value added is not strictly comparable to prior-year data. This is explained more fully in the inventories section below.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures—For establishments in operation and establishments under construction but not yet in operation, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures exclude that portion of expenditures leased from nonmanufacturing concerns, new facilities owned by the Federal Government but operated under

contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers were also requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred to the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; i.e., it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form and is subject to sampling error (see table 3d). The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in both tables 3a and 3d. The figure in table 3a is a census universe total and may differ from the results of the ASM sample shown in table 3d. Since the figures in table 3d are subject to sampling error, they are not considered as reliable as the universe figures.

End-of-year inventories—Respondents were asked to report their 1981 and 1982 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown in footnote 4 of table 1a. However, the end-of-1981 figure shown in this footnote may differ from the corresponding value published as part of the 1981 Annual Survey of Manufactures.

This difference at the four-digit SIC level is due primarily to the effects of industry shifts. As described in the Industry Classification of Establishments section of the Introduction, ASM noncertainty plants are allowed to shift from one industry to another in a census year; whereas, they are "frozen" in a particular industry in ASM years. Other explanations for this difference include the effects of sampling and processing errors and revisions to end-of-1981 data reported by respondents.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw

materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing," which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the Introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary

products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

Supplemental labor costs—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records do not generally provide reliable figures on net employee benefits of these types.

Cost of purchased services—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property are also included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force are also excluded.

The response coverage ratio shown in table 3d for each of the three types of purchased services listed above is a measure of the extent to which respondents reported for each item. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight; see section 3) for those ASM establishments that reported the

specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Electric energy used for heat and power—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy and quantity of generated-less-sold electric energy were collected only on the ASM forms. The cost and quantity of purchased electric energy represent the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Beginning- and end-of-year depreciable assets—The data encompass all fixed depreciable assets on the books of establishments at the beginning and at the end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are non-depreciable capital assets, including inventories and intangible assets, such as patent rights and royalties. Also excluded are land and depletable assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Breakdown of new capital expenditures for machinery and equipment—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

The "not specified by kind" or n.s.k. item for expenditures for new machinery and buildings, shown in table 3d, represents the total machinery and equipment expenditures for establishments that did not break down their expenditures for the three specific categories. This means that for most industries the specific categories are understated.

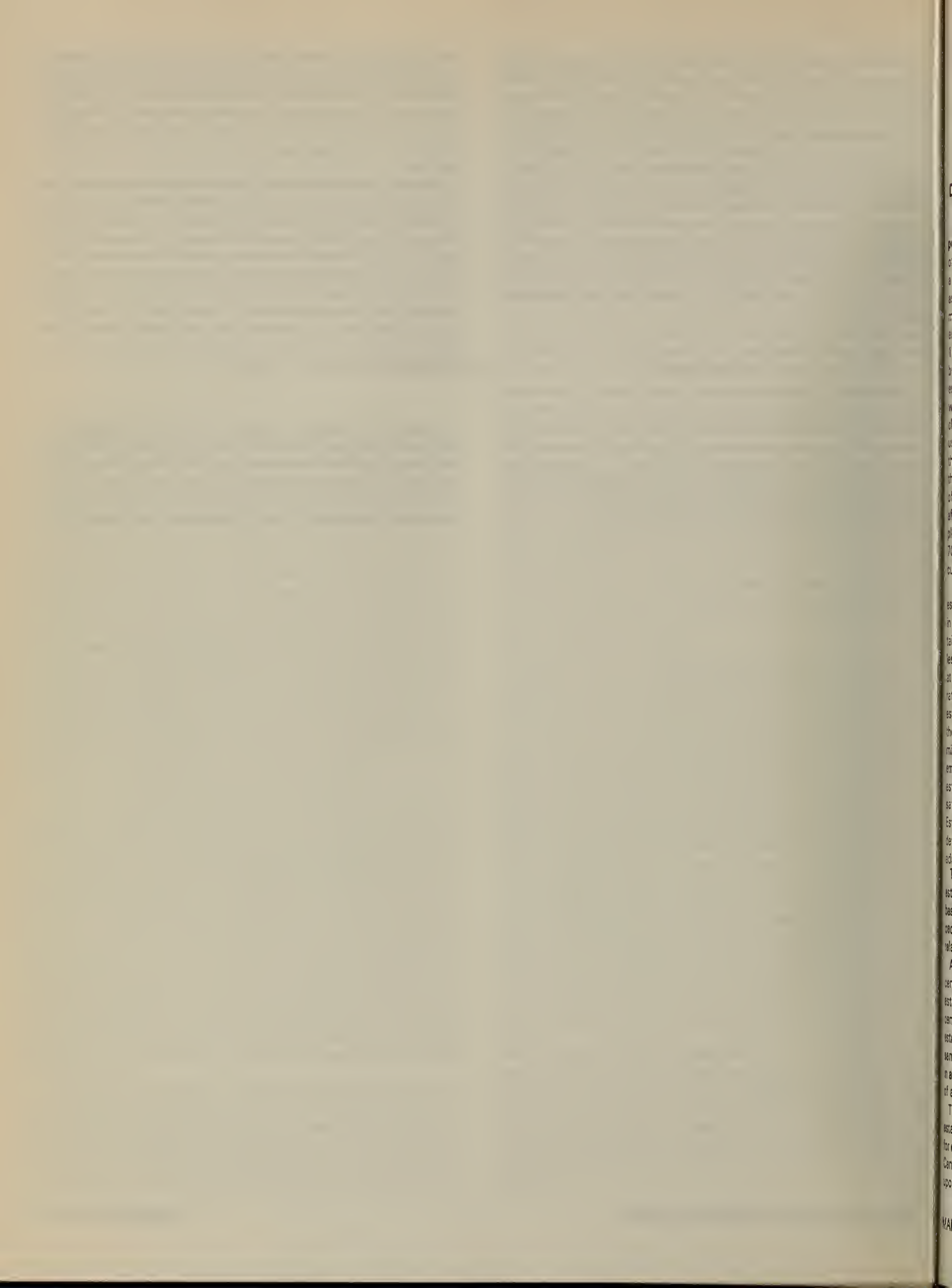
Retirements—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1982. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent was also requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Rental payments—This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company, and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciation charges—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.



APPENDIX B.

Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 55,000 manufacturing establishments selected from a total of about 225,000 establishments. These 225,000 establishments represent all manufacturing establishments of multiunit companies and all single-unit manufacturing establishments with five employees or more tabulated in the 1977 Census of Manufactures. This mail portion is supplemented by a Social Security Administration list of new manufacturing establishments opened after 1977. The individual establishments were defined as the sampling unit for this sample. This is a change from the previous ASM sample when companies were used as the sampling unit. The implication of this change is that the probability of selection of any establishment relates only to the size of the establishment itself and is independent of the size of the company with which the establishment is affiliated. The efficiencies associated with the change to an establishment sample have made it possible to reduce the mail sample panel from 70,000 establishments in 1978 to 55,000 establishments in the current panel.

The nonmail portion of the survey includes all single-unit establishments that were tabulated with less than five employees in the 1977 Census of Manufactures. Although this portion contained approximately 125,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of other Federal agencies. This administrative record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under special conditions, which safeguard the confidentiality of both tax and census records. Estimates for data for these small establishments were developed using industry averages in conjunction with the administrative information.

The corresponding estimates for the mail and nonmail establishments were added together, along with the adjusted base-year differences as defined in Description of Estimating Procedures below. The remaining description of the survey sample relates only to the mail portion of the ASM sample.

All establishments with 250 employees or more in the 1977 census were included in the survey panel with certainty. These establishments collectively account for approximately 65 percent of the total value of shipments for manufacturing establishments in the 1977 census. Smaller establishments were sampled with probabilities ranging from 1.000 down to 0.005 in accordance with mathematical theory for optimum allocation of a sample.

The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. For establishments included in the 1977 Census of Manufactures, the measure of size depended directly upon each establishment's 1977 product class values and the

historic variability of the year-to-year shipments of each product class. Roughly equivalent measures of size were assigned to postcensus birth establishments based on their industry codes and anticipated payroll and employment.

The method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight to differences in employment, value added, and other general statistics, for these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of establishments into and out of a given sample panel without introducing a bias into the survey estimates.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1978-1981 were computed using a modified "difference estimate" formula. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1977 census published number for an item total and the linear ASM estimate of the total for 1977. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

This base-year difference was then adjusted to reflect the estimated growth at the four-digit or, in the case of product classes, five-digit based Standard Industrial Classification (SIC) level from 1977 to the year of the survey; for example, 1981. It should be noted that due to processing constraints, the growth factors lagged one year; i.e., if 1981 is the survey year, they were not based on the estimated growth from 1977 to 1981 but rather the growth from 1977 to 1980. This one-year lag had negligible effect on the estimates, particularly at the total manufacturing level where the adjusted base-year difference accounted for less than 1 percent of the estimate for total value of shipments.

These adjusted base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1978-1981. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1982 sample data included in table 3d were also developed using difference estimates. However, since the universe totals for the census year (1977 or 1982) were not known, a modification of the procedure described above was necessary. For each item in table 3d, except purchased services and breakdown of expenditures for new machinery and equipment (see further description in appendix A, section 2), linear

estimates of the publication totals from the ASM mail sample were adjusted by the difference between imputed census totals and the corresponding ASM mail sample estimates of these imputed totals. These imputed totals are obtained by applying industry average ratios to control item values at the establishment level. For example, an imputed total beginning assets figure is obtained by multiplying each establishment's total value of shipments by the industry (four-digit SIC) average for the ratio of beginning assets to shipments.

Separate estimates for the nonmail establishments were not developed. However, their contribution to the publication estimates is reflected in the difference adjustment.

The method of inventory valuation percentages included in table 3c was developed using both complete census information and ASM estimates. The percentages for the four major categories (LIFO, non-LIFO, valuation method not reported, and LIFO reported without associated value and reserve) were derived from the complete census and correspond to the values included in table 3d. The percentages for the specific non-LIFO methods of valuations (FIFO, average cost, specific costs, etc.) are ratio estimates developed from the ASM in conjunction with the census universe estimate for the total of the non-LIFO methods.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. Except for table 3c, they are presented in the form of relative standard errors, the standard errors divided by the estimated values to which they refer. In table 3c, "absolute" standard errors of the estimates are presented.

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.

3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total and about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors would also occur if a complete canvass were to be conducted under the same conditions as the survey.

Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

REFERENCE MATERIALS • ORDER FORMS • PUBLICATION CORRECTIONS

Please send me the items marked (X) below.

- ☐ Corrections (if there are any) for this publication — **Manufactures: Screw Machine Products, Fasteners and Washers; Metal Forgings and Stampings; and Metal Services, MC82-I-34D**

If you purchase several different reports from the 1982 Economic Censuses, you should complete this form from each of the reports and return it to the address shown below to receive publication corrections. However, you should complete the following on **only** one of the forms.

- ☐ Guide to the 1982 Economic Censuses and Related Statistics
- ☐ Monthly Product Announcement — A monthly notice of all products released by the Census Bureau during the previous month — useful primarily to persons who plan to purchase publications, tapes, etc., in the future.

Publication announcements and order forms — *Mark (X) subjects in which you are interested.*

- | | | |
|--|--|---|
| <input type="checkbox"/> Retail Trade | <input type="checkbox"/> Economic Censuses of Outlying Areas (Puerto Rico, Guam, Virgin Islands, and Northern Mariana Islands) | <input type="checkbox"/> Governments |
| <input type="checkbox"/> Wholesale Trade | | <input type="checkbox"/> Foreign Trade |
| <input type="checkbox"/> Service Industries | <input type="checkbox"/> Enterprise Statistics | <input type="checkbox"/> Population |
| <input type="checkbox"/> Construction Industries | <input type="checkbox"/> Minority- and Women-Owned Businesses | <input type="checkbox"/> Housing |
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Agriculture | <input type="checkbox"/> International Statistics |
| <input type="checkbox"/> Mineral Industries | <input type="checkbox"/> County Business Patterns | <input type="checkbox"/> Geography |
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Quarterly Financial Report | <input type="checkbox"/> Guides, Catalogs, etc. |

Name			<p>Mail completed form to,</p> <p>Customer Services</p> <p>DUSD</p> <p>Bureau of the Census</p> <p>Washington, D.C. 20233</p>
Organization			
Address/PO Box			
City	State	ZIP Code	

The image shows four three-dimensional boxes, each representing a different data storage format. From left to right:

- Reports:** The box contains a stack of papers with horizontal lines representing text.
- Microfiche:** The box contains a microfiche card with a grid of small frames.
- Computer Tapes:** The box contains three magnetic tape reels.
- Maps:** The box contains a map with various geographical features and labels.

This report may be just one of several in the Census family with data you need. The best way to find out is to see the whole family of data products in the only place you'll find them ALL described—the **Bureau of the Census Catalog**.

Buy a Catalog today and meet our family!

☆ U.S. GOVERNMENT PRINTING OFFICE: 1985-461-127/20069

THE UNIVERSITY OF CHICAGO PRESS
1900



THE UNIVERSITY OF CHICAGO PRESS
1900

THE UNIVERSITY OF CHICAGO PRESS
1900

THE UNIVERSITY OF CHICAGO PRESS
1900

THE UNIVERSITY OF CHICAGO PRESS
1900

19
in
are
be
Da
BU
Pr
45
St
ge
F
In
inc
mi
th
ex
su
est
ea
fa
by
sp
co
Ge
da
ma
we
Nest
Co
lar
fo
inc
in
Su
Sal

PUBLICATION PROGRAM

1982 CENSUS OF MANUFACTURES

Publications of the 1982 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publication order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233

Preliminary Reports

Preliminary industry data are issued in 443 separate reports covering 452 industries (or combinations of industries). Preliminary data for States are grouped and released in reports for each of the nine census geographic divisions.

Final Reports

Final detailed statistics are issued in separate paperbound reports.

Industry series—82 reports (MC82-I-20A to -39D)

Each of the 82 reports provides information for a group of related industries (e.g., "dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 452 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment and degree of primary product specialization. Statistics are given on production of specific products and consumption of energy and various materials by industry.

Geographic area series—51 reports (MC82-A-1 to -51)

A separate report for each State and the District of Columbia presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, SMSA's, and large industrial counties and places. Comparative statistics for earlier census years are shown for the State and large SMSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics—including inventories, assets, rents, and energy costs—are presented only in statewide totals.

Subject series—10 reports (MC82-S-1 to -10)

Each of the 10 reports contains detailed statistics for an individual subject, such as: selected materials consumed, selected metalworking

operations, manufacturing activity in government establishments, concentration ratios in manufacturing, type of organization, water use in manufacturing, fuels and electric energy consumed (separate publications for industry statistics, and State and SMSA statistics), textile machinery in place, production indexes, and a general National-level summary.

Final Report Volumes

Final paperbound reports subsequently are assembled and reissued in clothbound volumes.

- Volume I. Summary and Subject Statistics—data previously issued in series MC82-S.
 - Part 1. Major Groups 20 to 26
 - Part 2. Major Groups 27 to 34
 - Part 3. Major Groups 35 to 39
- Volume II. Industry Statistics—data previously issued in series MC82-I.
 - Part 1. Alabama to Montana
 - Part 2. Nebraska to Wyoming
- Volume III. Geographic Area Statistics—data previously issued in series MC82-A.
 - Part 1. Alabama to Montana
 - Part 2. Nebraska to Wyoming

Microfiche

All published data also are available on microfiche.

Computer Tapes

Selected data—generally detailed information by industry and/or geographic area—also are available on public-use computer tapes. For the selected data, these tapes will provide the same information found in the final reports. Public-use computer tapes are available for users who wish to summarize, rearrange, or process large amounts of data. These tapes, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, enterprise statistics, minority-owned businesses, women-owned businesses, and transportation also are issued as part of the 1982 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. All published reports and microfiche are sold by the Superintendent of Documents, U. S. Government Printing Office. Appropriate announcements and order forms describing these products are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Official Business

Penalty for Private Use, \$300

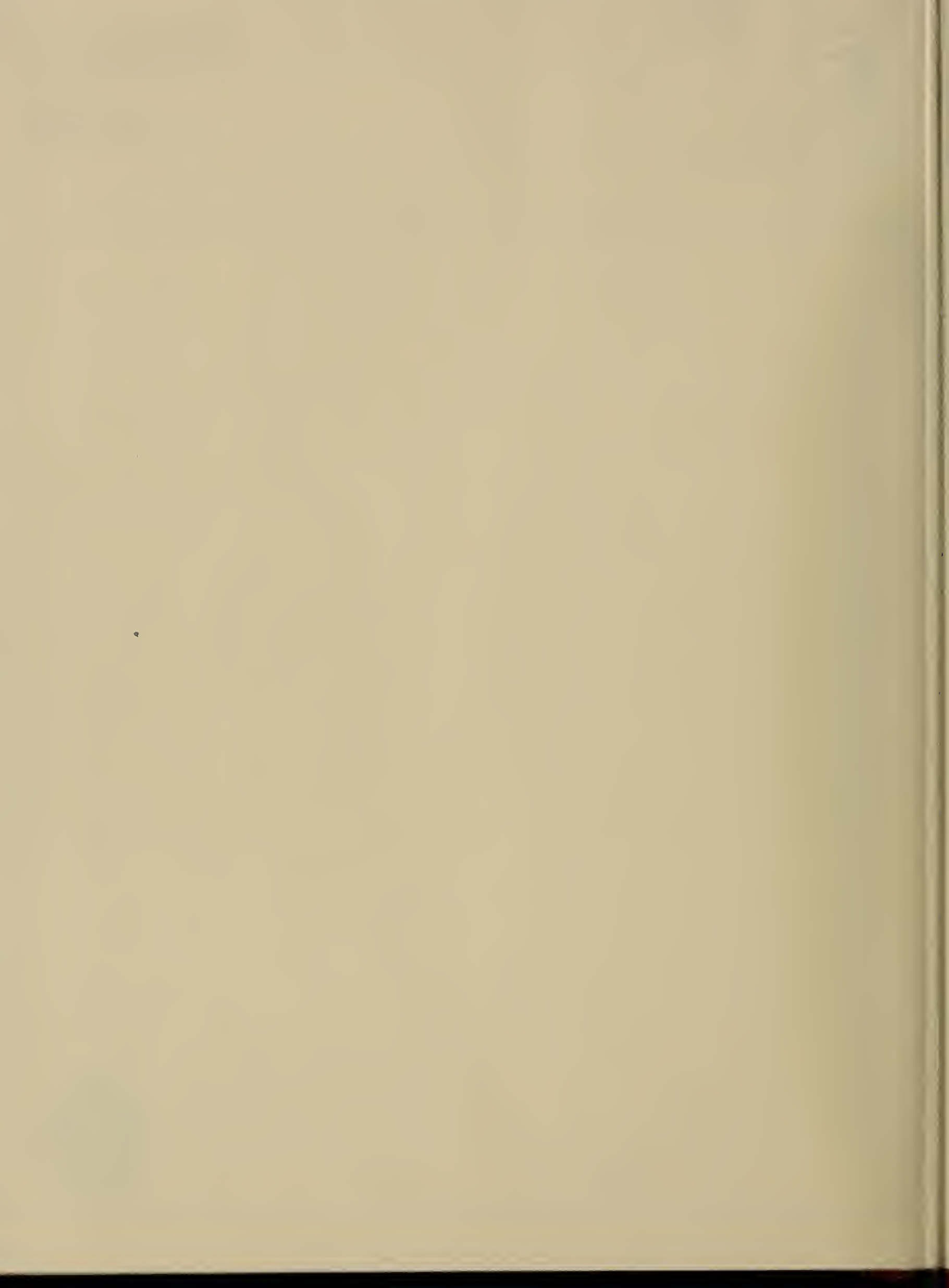


POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM-202

Special Fourth-Class
Rate—Book







CB/Bureau of the Census Library



5 0673 01031322 2